

# **DesignWork**

A STUDY OF PUBLIC WORKS PROGRAMMES  
IN SOUTH AFRICAN ARCHITECTURAL PROJECTS

DANIEL SPLAINGARD

Research Thesis for the Degree of  
Masters of Philosophy in Architecture  
University of Cape Town

Submitted April 4, 2016

The copyright of this thesis vests in the author. No quotation from it or information derived from it is to be published without full acknowledgement of the source. The thesis is to be used for private study or non-commercial research purposes only.

Published by the University of Cape Town (UCT) in terms of the non-exclusive license granted to UCT by the author.



## Table of Contents

Illustrations by Chapter .....	v
Dedication .....	viii
Acknowledgements .....	ix
Plagiarism Declaration .....	x
Abstract.....	xii
CHAPTER 1: Introduction .....	1
CHAPTER 2: Literature Review .....	7
CHAPTER 3: Research Methodology .....	27
CHAPTER 4: Understanding EPWP .....	34
CHAPTER 5: Project Selection .....	54
CHAPTER 6: Mapungubwe Interpretive Centre .....	57
CHAPTER 7: Ocean View Housing .....	89
CHAPTER 8: Data Collection and Analysis .....	120
CHAPTER 9: Conclusions and Recommendations .....	138
Appendices .....	156



## **Appendices**

<b>Appendix A.1:</b> World Architecture Foundation Citation .....	<b>157</b>
<b>Appendix B.1:</b> Active Labour Market Programmes Table .....	<b>158</b>
<b>Appendix B.3:</b> Hassan Fathy Records of Works .....	<b>160</b>
<b>Appendix B.4:</b> PublicInterestDesign.org Book List.....	<b>161</b>
<b>Appendix B.5:</b> Economic Empowerment Excerpts from <u>Afritecture</u> .....	<b>162</b>
<b>Appendix B.6:</b> EPWP Q4 2014-2015 RDP Housing Audit .....	<b>165</b>
<b>Appendix C.1:</b> Signed Ethics Forms.....	<b>166</b>
<b>Appendix C.2:</b> Chronology of Interviews .....	<b>168</b>
<b>Appendix C.3:</b> Baseline Interview Questions .....	<b>171</b>
<b>Appendix C.4:</b> Interview Recording Consent Form .....	<b>172</b>
<b>Appendix C.5:</b> Interview Consent Form.....	<b>173</b>
<b>Appendix C.6:</b> List of Site Visits .....	<b>174</b>
<b>Appendix D.1:</b> EPWP Glossary of Terms.....	<b>175</b>
<b>Appendix D.2:</b> EPWP Sector Size Table .....	<b>178</b>
<b>Appendix D.3:</b> Summary of EPWP Phases.....	<b>179</b>
<b>Appendix D.4:</b> EPWP Incentive Grant.....	<b>180</b>
<b>Appendix D.6:</b> National Qualification Framework.....	<b>183</b>
<b>Appendix E.1:</b> Table of Screened Projects.....	<b>184</b>
<b>Appendix F.1:</b> UNESCO Citation.....	<b>185</b>
<b>Appendix F.2:</b> Architectural Competition Announcement.....	<b>187</b>
<b>Appendix F.3:</b> Architectural Competition Programme .....	<b>189</b>
<b>Appendix F.4:</b> SA Digest Excerpt.....	<b>199</b>
<b>Appendix F.5:</b> Sample Critical Path Timeline .....	<b>203</b>
<b>Appendix G.1:</b> Housing Subsidy Types.....	<b>202</b>
<b>Appendix G.2:</b> City of Cape Town Human Settlement South Division Organogram .....	<b>204</b>
<b>Appendix G.3:</b> Ocean View Support Organization Diagramme.....	<b>206</b>
<b>Appendix G.4:</b> People's Housing Process Application .....	<b>207</b>
<b>Appendix G.5:</b> City of Cape Town Request for Services.....	<b>208</b>
<b>Appendix G.6:</b> 2011 Ocean View Census from StatsSA.....	<b>211</b>
<b>Appendix G.7:</b> Stonemason Evaluations.....	<b>212</b>
<b>Appendix G.8:</b> Stonemason Sample Certificate .....	<b>213</b>
<b>Appendix G.9:</b> Floor Plan Addition .....	<b>214</b>
<b>Appendix G.10:</b> <i>People's Post</i> Article.....	<b>215</b>
<b>Appendix H.1:</b> Mapungubwe Data Request .....	<b>216</b>
<b>Appendix H.2:</b> Mapungubwe EPWP Data.....	<b>217</b>
<b>Appendix H.3:</b> Ocean View Data Request .....	<b>220</b>
<b>Appendix H.4:</b> Ocean View EPWP Data .....	<b>221</b>

## Illustrations by Chapter

### 1. Introduction

- Fig. 1.1 US Map. By Author.
- Fig. 1.2 French Cartoon, 1968. Anonymous excerpted from Sherry Arnstein.
- Fig. 1.3 Chicago Mosaic Project. By Author.

### 2. Literature Review

- Fig. 2.1 Venn Diagramme. By Author.
- Fig. 2.2 The Jewel Box. By Author.
- Fig. 2.3 Minimum Wage Table. Subbaroa et. al. 1997.
- Fig. 2.4 Table of Roadwork Activities. *Watermeyer and Band, 1994.*
- Fig. 2.5 Training of New Gournia Worker. *Hassan Fathy. Architecture for the Poor.*
- Fig. 2.6 Table of Costs. *Hassan Fathy. Architecture for the Poor.*
- Fig. 2.7 The Victoria Mxenge Housing Project. *Salma Ismail.*
- Fig. 2.8 Grameen Bank House. *Aga Khan Award.*
- Fig. 2.9 Afritecture cover. Hantje Cantz.
- Fig. 2.10 Central Market. Burkina Faso. Laurent Séchaud. Afritecture.
- Fig. 2.11 Screenshot of Haiti Hospital Video. MASS Design Group.
- Fig. 2.12 Detail of Lesotho construction system. By Author.
- Fig. 2.13 Lesotho School Panorama Photo. By Author.
- Fig. 2.14 Venn Diagramme. By Author.

### 3. Research Methodology

- Fig. 3.1 Research Method Diagramme. Excerpted from Robert Yin. Case Study Design.
- Fig. 3.2 Case Study Diagramme. Excerpted from Robert Yin. Case Study Design.

### 4. EPWP

- Fig. 4.1 Map of PWP's. By Author.
- Fig. 4.2 Gender Employment Chart. 2011 *Gender in South Africa* Report.
- Fig. 4.3 Diagramme of EPWP Goals. By Author
- Fig. 4.4 Diagramme of Levels of EPWP Structure. By Author
- Fig. 4.5 Table of EPWP Sectors. By Author
- Fig. 4.6 EPWP Budget. Adapted by Author from 2015 SA Treasury Data.
- Fig. 4.7 Sample EPWP Reporting Criteria. Adapted by Author from EPWP 2014/2015.
- Fig. 4.8 EPWP Labour-Intensity Table. EPWP.
- Fig. 4.9 EPWP Stakeholder Diagramme. Sean Phillips.
- Fig. 4.10 CETA Training Diagramme. EPWP.
- Fig. 4.11 EPWP Exit Diagramme. EPWP.
- Fig. 4.12 NQF Trainings. SAQA.

### 5. Project Selection

- Fig. 5.1 Map of Select Projects. By Author.
- Fig. 5.2 Flyvbjerg Case Selection Table. Bent Flyvbjerg.
- Fig. 5.3 Quadrant Diagramme of Projects. By Author.

## 6. Mapungubwe Interpretive Centre

- Fig. 6.1 Mapungubwe Interpretive Centre. By Author.
- Fig. 6.2 Project Location Map. By Author.
- Fig. 6.3 Map of Mapungubwe National Park. SANParks.
- Fig. 6.4 Collage of SANParks Developments. SANParks.
- Fig. 6.5 SANParks National Parks Map. SANParks.
- Fig. 6.6 Section of Interpretive Centre. Peter Rich.
- Fig. 6.7 Guastavino Vaulting. John Ochsendorf.
- Fig. 6.8 Interior of Pines Calyx. light-earth.com.
- Fig. 6.9 Plan of Mapungubwe Interpretive Centre. Peter Rich.
- Fig. 6.10 Pressed Tile vs. Hydraform Block. Adapted by Author from Hydraform.
- Fig. 6.11 Diagramme of Tile Pressing. By Author.
- Fig. 6.12 Experimental Vaults. By Author.
- Fig. 6.13 Mapungubwe Area Map. By Author.
- Fig. 6.14 Site Map of Mapungubwe. By Author.
- Fig. 6.15 Tile Making Cycle. Anne Fitchett.
- Fig. 6.16 Tile Production. Adapted by Author from SANParks Site Boards.
- Fig. 6.17 Labour Type Illustration. By Author.
- Fig. 6.18 Guastavino Layers. Guastavino Vaulting. John Ochsendorf.
- Fig. 6.19 Mapungubwe Interpretive Centre Site Map. By Author.
- Fig. 6.20 Vault Edge Repair. By Author.
- Fig. 6.21 Vaults with Rocks. By Author.
- Fig. 6.22 Views Inside Exhibition. SANParks.

## 7. Ocean View Housing

- Fig. 7.1 Ocean View Panorama. By Author.
- Fig. 7.2 Area Map. By Author.
- Fig. 7.3 Site and Adjacent Areas Map. By Author.
- Fig. 7.4 Neighborhood Map of Ocean View. By Author.
- Fig. 7.5 Mountain View Map. By Author.
- Fig. 7.6 Mbewkeni Stone Houses. By Author.
- Fig. 7.7 Early Rendering. Adapted by Author from Image Courtesy of Andre Spies.
- Fig. 7.8 Sample Plans. Adapted by Author from Image Courtesy of Andre Spies.
- Fig. 7.9 Overall Site Plan. Adapted by Author from Image Courtesy of Andre Spies.
- Fig. 7.10 Ocean View Wall Design. Courtesy of Etienne Bruwer.
- Fig. 7.11 Ocean View Stonemasonry Training. Pauline Houniet
- Fig. 7.12 Model Houses. By Author.
- Fig. 7.13 Type D House Plan. Adapted by Author. Courtesy of Andre Spies.
- Fig. 7.14 Type D House. By Author.
- Fig. 7.15 Artisan Organogram. Adapted by Author. Courtesy of Etienne Bruwer.
- Fig. 7.16 Team Size Diagramme. By Author.

## 8. Analysis and Data Collection

- Fig. 8.1 Two Project Photos. By Author.
- Fig. 8.2 EPWP 3 Column Diagramme. By Author.
- Fig. 8.3 Income Relief Table. By Author.

Fig. 8.4	Detail of Labour Intensity. SANParks.
Fig. 8.5	EPWP Housing Project Table. Adapted by Author from EPWP.
Fig. 8.6	Construction Skills Training Deliverable Table. By Author.
Fig. 8.7	Mapungubwe EPWP Diagramme. By Author.
Fig. 8.8	Ocean View EPWP Diagramme. By Author.
Fig. 8.9	Training Census Diagramme. By Author.
Fig. 8.10	Training Census Ring. By Author.
Fig. 8.11	SanParks Attendance Tables. Compiled by Author from SANParks Data.
Fig. 8.12	Joint of Tile Vault. By Author.
Fig. 8.13	Ocean View Collage. By Author.
Fig. 8.14	EPWP Stonemasons at Ocean View. Courtesy of Etienne Bruwer.
Fig. 8.15	Interior View. By Author.
Fig. 8.16	Retention Pond Ocean View. By Author.
Fig. 8.17	House at Ocean View. By Author.

## **DEDICATION**

This paper is dedicated to my parents Mark and Debbie Splaingard.

## **ACKNOWLEDGMENTS**

This research was made possible thanks to the cooperation of officials at SANParks, the City of Cape Town Department of Human Settlements, and the Extended Public Works Programme office in Pretoria. Willingness to be interviewed and to sharing project information afforded me unique insight in this thesis. Additionally, I am indebted to those interviewed from the project teams at Ocean View and Mapungubwe for their participation and feedback. To each team I am grateful for the lessons you have shared with me. It is my hope that this thesis thoughtfully portrays the complexity of each project and advances critical discourse.

I would like to thank the Postgraduate Funding Office at the University of Cape Town for their support of my research through the International Student Fund Scholarship.

I would also like to thank my friends and colleagues who have provided feedback and support along the way. Diane and the library staff for their patience. James, Julian and Clinton for timely feedback and good humour. Fadly for steady support and provocative discussion, Sadiq for coffee and thoughts. Sonja and the studio teaching team for encouragement and curiosity. Nora for sharing the learning of her journey. Janine for guiding me through the process. Carin Smuts for hospitality, leading by example, and provoking my thinking along the way. Thanks to the family of CMM who have warmly welcomed me into their community and their homes. Thanks to Abdullah Ibrahim for the soundtrack.

I would like to thank my supervisor Iain Low for the consistent questioning, feedback and encouragement. From our initial transcontinental Skype discussions to the move to Cape Town your support of my development has been unwavering.

Finally, I would like to thank Rae without whom this endeavor would not have been possible and with whom this has been a wonderful experience.

## PLAGIARISM DECLARATION

I know that plagiarism is wrong. Plagiarism is to use another's work and pretend that it is one's own. I have used the Chicago Style 16<sup>th</sup> Edition Notes and Bibliography convention for citation and referencing. Each contribution to and quotation in this paper *DesignWork* from the work(s) of other people has been attributed, and has been cited and referenced. This paper *DesignWork* is my own work. I have not allowed, and will not allow, anyone to copy my work.

Signature: 

Signed by candidate
---------------------

Date: 4 April 2016

*"We should be guided by an awareness of the dignity and value of mankind and its mission to make earth a more humane place, to make the earth man's true home."*

-Eladio Dieste<sup>1</sup>

---

<sup>1</sup> Stanford Anderson and Eladio Dieste, *Eladio Dieste: Innovation in Structural Art*, 1st ed. (New York: Princeton Architectural Press, 2004), 263.



## **Abstract**

Increasingly in South Africa, architects are requested to design buildings that meet the job-creation and training goals of the Expanded Public Works Programme (EPWP), a government-led poverty relief initiative. In so doing, they have a mandate both to design buildings and to design work for the poorest of the poor. This unique context of architectural practice is herein termed DesignWork, and the links between these designs and their measurable work outcomes will be the focus of this Case Study Research.

Architects can be key agents in shaping economic empowerment for participants and architectural quality within these projects. This thesis investigated how architects addressed three key goals of increasing wage transfer through labour-intensive construction, enabling skill development through relevant in-situ technical training, and creating quality assets.

With the 2030 National Development Plan<sup>2</sup> anticipating the growth of the EPWP in the coming decades, the development of effective architectural strategies within this context is of great significance. Evidence from semi-structured interviews, site visits, archival documents, direct observation, and data collection were used to interrogate the architectural design strategies and work outcomes within two select projects. What emerges is a focused view of the central challenges of achieving the EPWP programme goals, baseline data for future research, and an understanding of the foreseeable challenges for architects designing in this context.

**Keywords:** *Expanded Public Works Programme, Labour-Intensive Construction, Architecture, DesignWork*

---

<sup>2</sup> National Planning Commission, *South Africa National Development Plan 2030. Executive Summary*. (Pretoria: ,[2012]).

## Acronyms

ALMP	Active Labour Market Policy
CBO	Community Based Organization
CBPWP	Community Based Public Works Programme
CCC	Civilian Conservation Corps
CLO	Community Liaison Officer
CETA	Construction Education Training Authority
CIDB	Construction Industry Development Board
CWP	Community Work Programme
DPW	Department of Public Works
EGS	Employment Guarantee Schemes
EPWP	Expanded Public Works Programme
GDS	Growth and Development Summit
ILO	International Labour Organization
LIC	Labour Intensive Construction
MGNREGS	Mahatma Ghandi National Rural Employment Guarantee Scheme
MHI	Mellon Housing Initiative
MIC	Mapungubwe Interpretive Centre
MIT	Massachusetts Institute of Technology
NPWP	National Public Works Programme
NQF	National Qualification Framework
OV	Ocean View Mountain View Housing Project
PHP	People's Housing Process
PWP	Public Works Programme
RDP	Reconstruction Development Programme
SALDRU	South African Labour Development Research Unit
SANParks	South African National Parks
SAQA	South African Qualifications Authority
SMME	Small, Medium and Micro Enterprises
SAIA	South African Institute of Architects
SACAP	South African Council of Architects and Planners
TIPS	Trade and Industrial Policy Strategies
USNA	USNA Bouers Construction Company
WPA	Works Progress Administration

## Glossary of Terms

**Architectural Project:** A building construction project with an architect leading the project design.

**Artisan:** In the context of South Africa this term refers to individuals specialized within construction sectors. Examples include electrician, plumber, carpenter etc.

**Creation:** The act of making or producing something that did not exist before : the act of creating something. (webster.com) With regards to job-creation in this thesis the term will be used to identify the creation of jobs that did not exist before.

**DesignWork:** Herein defined as the designing of employment opportunities implicit in the making of architectural designs.

**Direct EPWP:** An EPWP project implemented directly by a public body.

**Economic Empowerment:** Empowerment is usefully defined by as “an increase in influence and control through an acquisition of knowledge and skills.” (Lyons, Smuts, and Stephens 2001) In this regard, economic empowerment could expand the definition to: the improvement of economic prospects through and acquisition of knowledge and skills.

**Employment Guarantee Scheme:** Governmental programme that guarantees employment to a specified population over a sustained or indefinite period, the receipt of a transfer is conditional on satisfying a work requirement, usually relating to manual labour. (Overseas Development Institute 2011)

**Indirect EPWP:** This is an EPWP project implemented through a contracted entity.

**Job:** the work that a person does regularly in order to earn money; a duty, task, or function that someone or something has; something that requires very great effort. (webster.com)

**Labour-intensive:** refers to methods of construction and maintenance involving a mix of labour and machines without compromising on quality, where labour is the primary resource supported by plant and equipment for activities that cannot be feasibly done by labour only. (EPWP 2015)

**Matric:** In South Africa, matriculation (or matric) is a term commonly used to refer to the final year of high school and the qualification received on graduating from high school, although strictly speaking, it refers to the minimum university entrance requirements. (Wikipedia.com accessed 2015.)

**Poor:** Having little money or few possessions: not having enough money for the basic things that people need to live properly. (webster.com) In South Africa there are various ways of classifying the “poor” in society. EPWP recruitment focuses on “the poor”, though this is never explicitly defined. Based on the classification of Statistics South Africa there are three bands of poverty defined, the Food Poverty Line, the Lower Poverty Line, and the Upper Poverty Line. The Food Poverty Line is used to measure extreme poverty, which as of 2015 was defined as R335/person/month or R 11/day. There was estimated to be 10.7 million people below this threshold in 2015. (Laura Grant. Mail and Guardian, 5 Feb 2015)

**Principal Agent:** <sup>1</sup> a role defined by the South African Institute of Architects standard contract as: *“the person appointed to fulfill the obligations of the JBCC Principal Building*

*Agreement (as currently provided for in clause 5 of the JBCC (PBA), or fulfill the similar obligations provided for in other forms of contract.”(SAIA 2008)*

**Public Agency:** For the purposes of this thesis, a public agency refers to a governmental agency that delivers goods or services according to a legislative mandate. SANParks and the City of Cape Town Department of Human Settlement will be the primary public agencies herein discussed.

**Public Works Programme:** all activities which entail the payment of a wage (in cash or in kind) by the state, or by an agent acting on behalf of the state, in return for the provision of labour, in order to i) enhance employment and ii) produce an asset (either physical or social), with the overall objective of promoting social protection. (McCord 2008)

**Rand:** South Africa’s national currency. 100 rand, for example, is typically written as R100. At the time of this publication R100=\$6.48US or 5.80€ (google.com accessed 25/3/2016)

**Tender:** A tender is an offer to perform work, supply goods, services or products at a fixed price. The tendering process is generally utilized for procurements or contracts involving substantial amounts of money. (<http://www.sa-tenders.co.za>)

**Training:** A process by which someone is taught the skills that are needed for an art, profession, or job. (webster.com)

**Unit Standard:** Registered statements of desired education and training outcomes and their associated assessment criteria together with administrative and other information as specified in these regulations. Each unit standard has a credit value which is equivalent to *10 hours of notional learning*; the learning time that it would take an average learner to meet the outcomes defined. (<http://www.icb.org.za>. accessed August 2015.)

**Value engineering (VE):** is systematic method to improve the "value" of goods or products and services by using an examination of function. Value, as defined, is the ratio of function to cost. Value can therefore be increased by either improving the function or reducing the cost. It is a primary tenet of value engineering that basic functions be preserved and not be reduced as a consequence of pursuing value improvements. (Wikipedia.com. accessed 22/9/2015)

**Welfare:** Aid in the form of money or necessities for those in need. (webster.com)

**Workfare:** Programmes or schemes that require people to work in return for social assistance benefits. (Lødemel 2005, 4)



## CHAPTER 1: Introduction

*If a man has no chance of obtaining work he is in a desperate position, not simply because he lacks an income but because he lacks this nourishment and enlivening factor of disciplined work which nothing else can replace.*

*-E.F. Schumacher<sup>3</sup>*

### 1.1 Setting the Context

South Africa emerged from Apartheid in 1994 as a country with vast levels of inequality derived from decades of governmental policies that marginalised the majority of its population to second-class citizenship. Disinvestment in education, spatial segregation and forced relocation left many not only under-skilled and unemployed but also geographically isolated.<sup>4</sup> In addition, for decades the majority of people were legally restricted from competing in the larger market place due to Apartheid laws.<sup>5</sup>

With the emergence of a new democratic state in 1994, the new national government recognized the urgent need to address both high unemployment and a backlog of unmet infrastructure needs, primarily in areas most marginalised by Apartheid era policies. This relationship between infrastructure improvement (utility services, sanitation, roads, housing, and public buildings) and job opportunities was central to early legislative action, namely the formation of the Reconstruction and Development Programme (RDP).<sup>6</sup>

---

<sup>3</sup> E. F. Schumacher, *Small is Beautiful: A Study of Economics as if People Mattered*. (New York: Harper & Row, 1973).

<sup>4</sup> Kate Philip, "Inequality and Economic Marginalisation: How the Structure of the Economy Impacts on Opportunities on the Margins," *Law, Democracy & Development* 14, no. 1 (2010).; RSA, *20 Year Review: South Africa 1994-2014* (Pretoria: Republic of South Africa,[2014]).

*"Following the Bantu Education Act of 1953, government entrenched racially segregated education and kept per capita spending on black education at only one-tenth of spending on white education."* RSA 2014.

<sup>5</sup> The Native Building Workers Act of 1951 made it illegal for Africans to perform skilled work outside of the townships.

<sup>6</sup> *White Paper on Reconstruction and Development*, Public Law 1954, *Government Gazette* (1994): .

As former President Nelson Mandela explained in 1994:

*Our country is going through a profound transformation at all levels of government and society to ensure the implementation of the RDP. At the heart of the Government of National Unity is a commitment to effectively address the problems of poverty and the gross inequality evident in almost all aspects of South African society.<sup>7</sup>*

The goals of the programme concerning the nations economic inequality were outlined in the RDP White Paper:

*The poor majority of the people carry the burden of unemployment, bad housing, poor health - in short of the poor performance of the economy. The RDP is committed to reversing the distortions of the economy.<sup>8</sup>*

In the decade from 1994-2004 many concurrent governmental programmes<sup>9</sup> tested how to bridge these two related but distinct goals: infrastructure improvement and job creation. In 2004 the Extended Public Works Programme (EPWP) emerged as a nationwide programme to address the need for poverty relief and skills training.

*The objective of the EPWP is to utilise public sector budgets to alleviate unemployment by creating temporary productive employment opportunities coupled with training.<sup>10</sup>*

This programme was based on the principles of labour-intensive construction.<sup>11</sup> The EPWP became a mandate for all public infrastructure building, prioritizing hiring and training local labourers in all projects.

---

<sup>7</sup> Ibid.

<sup>8</sup> Ibid.

<sup>9</sup> Further description in Chapter 4: EPWP

<sup>10</sup> Sean Phillips, *The Expanded Public Works Programme (EPWP): Overcoming Underdevelopment in South Africa's Second Economy*. (Pretoria: Department of Public Works, 2004).

<sup>11</sup> Ibid.

## 1.2 DesignWork

The EPWP is now in its third five-year phase, and is expected to continue through 2030.<sup>12</sup> Increasingly in South Africa, architects will be requested to design buildings that meet the job-creation and training goals of the EPWP. DesignWork is a term introduced within this thesis to refer to contexts where architects seek to both design buildings as well as empowering work opportunities. This dual intention emerges from the knowledge that embedded in architectural details are labour ramifications,

*Architectural design “at the drawing board” is never neutral. It predetermines a set of relations around production.*<sup>13</sup>

As this thesis will reveal, architectural design can predetermine the work of many labourers of various skills levels. For the unemployed invited to participate through the EPWP, in addition to a source of income this work can present a rare opportunity for new skill acquisition.

## 1.3 Locating the Researcher in the Research

The motivation to research this topic derived from formative experiences in the USA working in the design and development of community projects in rural Alabama and social housing projects in urban Chicago neighborhoods, both in contexts with high rates of unemployment and poverty. Experiences at the Rural Studio<sup>14</sup> in Alabama highlighted the architectural possibilities afforded through unique labour resources, including eager architecture students, dedicated teaching staff, and occasional volunteers. Emphasis was placed on empowering young architects to learn, and gain confidence and skills through building. These buildings became

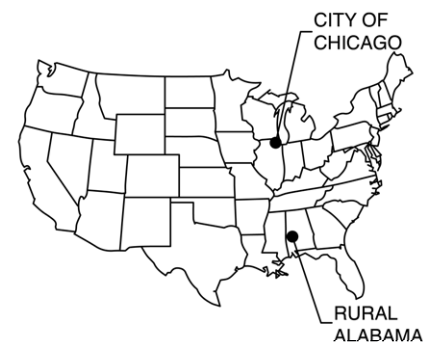


Figure 1.1 US Map

<sup>12</sup> National Planning Commission, *South Africa National Development Plan 2030. Executive Summary.*, 66

<sup>13</sup> Iain Low, *Blank: Architecture, Apartheid and After. Essay: Building and Self-Reliance.*, eds. Hilton Judin and Ivan Vladislavić (Rotterdam: Nai Uitgevers Pub, 1998).

<sup>14</sup> “Rural Studio is an off-campus design-build programme of Auburn University. The programme, established in 1993 by D.K. Ruth and Samuel Mockbee, gives architecture students a more hands-on educational experience whilst assisting an underserved population in West Alabama’s Black Belt region. [www.ruralstudio.org](http://www.ruralstudio.org)



both pedagogical tools and, once completed, new resources for rural communities.



Figure 1.2 French Poster 1968

Experiences in Chicago included exhausting “community engagement” processes that often yielded more bitterness than consensus. The reality of the French protest cartoon “I participate, you participate, we participate...they get paid” was embodied. The only work guarantee was for the professionals in the room while community members were often left hoping for some invitation to participate in an economically beneficial way.

Within one housing development a mosaic project trained volunteers and a small group of workers hired through a short-term employment programme called “*Putting Illinois to Work*”. Albeit small, this project yielded a positive and collective experience of including community members in the building process. Further efforts to increase the use of local labour and to create job opportunities proved difficult to realize within constrained budget and time resources and political realities.

What became apparent in both rural and urban contexts was that unemployed, often poor neighbors in proximity to ambitious developments often had few “on-ramps” to participate, earn and gain new skills within the building process. The challenge in such contexts of poverty became to design economically empowering processes for making buildings, not simply making beautiful buildings. Who designs and who builds can reveal the core values held within a project. In the words of Paolo Freire:

*Real generosity lies in striving so that those hands, whether of individuals or entire peoples, need be extended less and less in supplication, so that more and more they become human hands which work, and by working, transform the world.<sup>15</sup>*

---

<sup>15</sup> Paulo Freire, *Pedagogy of the Oppressed*. (London: Bloomsbury Publishing, 2000).

This thesis was motivated by the desire to understand the potential for architects working within contexts of poverty to empower others to work, to earn, and to grow in skills and knowledge. The University of Cape Town offered a research setting in proximity to many architectural projects<sup>16</sup> in areas of high unemployment and representing various architectural approaches and challenging new perspectives, as Andres Lepik suggests:

*...the flow of knowledge can move in multiple directions, that new perceptions about the needs of a severely challenged developed world can be found in practices developed in the underdeveloped world, particularly as the issue of appropriate technology becomes the most urgent mantra for architectural practice everywhere from the villages of Burkina Faso to the five boroughs of New York City.*<sup>17</sup>

The Mapungubwe Interpretive Centre in the remote region of Limpopo, South Africa presented a particularly intriguing South African project. Completed in 2009, the project was selected by an international jury at the World Architecture Festival as the World Building of the Year Award<sup>18</sup>. In an array of media articles that followed, two elements of the project consistently emerged: the beautiful, innovative, and energy efficient vaulted structural system, and the hiring and training of local unemployed people to complete the construction work. A reduction of approximately 75% less CO<sub>2</sub> emissions was cited along with extensive publication on its structural innovations.<sup>19</sup> However, with regard to the employment programme, no additional information could be located to describe this innovative component, except mention of a few statistics in a wholly unfamiliar format: 3 SMME's developed and some 40,000+ person/days achieved. Evaluating the significance of what these figures meant and their relation to architectural design was elusive.



**Figure 1.3** Chicago Mosaic Project

<sup>16</sup> See Appendix E.1 for a list of Screened Projects

<sup>17</sup> Andres Lepik, *Afritecture: Building Social Change*. Hatje Cantz, 2014).

<sup>18</sup> See Appendix A.1 for World Building of the Year citation.

<sup>19</sup> Michael H. Ramage et al., "Design and Construction of the Mapungubwe National Park Interpretive Centre, South Africa." *ATDF JOURNAL* 7, no. 1/2 (2010).

While it seemed evident these statistics were meant to communicate economic empowerment, experiences with architectural media caused some skepticism.<sup>20</sup> Certainly it was important to establish the context of these numbers and what they meant.

Several initial question related to job-creation programmes linked to architectural projects emerged: What happens *after* the building is complete? How can the tactics of economic empowerment efforts within architectural projects be more precisely understood? How can job-training and job-creation achievements be framed in similarly convincing terms as environmental sustainability achievements?

From this initial inquiry blossomed a more extensive analysis of the archival documents concerning the Mapungubwe Interpretive Centre. This lead to discovery of the EPWP, the primary governmental programme shaping the work opportunities at Mapungubwe and many other architectural projects across South Africa, including the Ocean View Housing Project in Cape Town. From here the motivating research question was formed.

#### 1.4 Research Question

***How is the Expanded Public Works Programme structured to work within architectural projects and what is the role of design in achieving programme goals?***

---

<sup>20</sup> In my 4+ years at the Rural Studio many journalists passed through writing articles or feature stories. I came away from the experience realizing the cursory glance given to most of the many genuinely challenging issues in architecture. This made me a much more critical reader of architectural media, particularly feel-good stories. This process has given me appreciation for the value of peer-reviewed writing, and, I hope, lead me to be a better researcher because of it.

## CHAPTER 2: Literature Review

This review surveys key literature related to the two main subjects of this thesis: Public Works Programmes and Architectural Projects in order to shed light on DesignWork. This will be a Scoping Review, which

*documents what is already known, and then, using a critical analysis of the gaps in knowledge, it helps to refine the research questions, concepts and theories to point the way to future research.*<sup>21</sup>

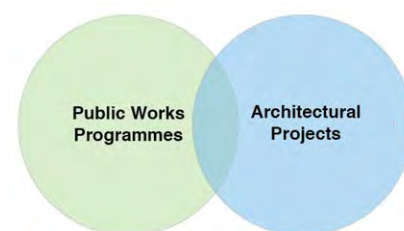


Figure 2.1 Venn Diagramme

Literature relating to the convergence of Public Works Programmes and Architectural Projects is scarce. Therefore, a wide net will be cast to adjacent research areas considering both global and South African literature.

### Public Works Programmes

Public Works Programmes represent an attempt at a systematic approach to poverty relief. This thesis seeks to understand how architects and development teams can best align individual projects with national goals through this common framework. Anna McCord<sup>22</sup> defines Public Works Programmes (PWP's) as:

*all activities which entail the payment of a wage (in cash or in kind) by the state, or by an agent acting on behalf of the state, in return for the provision of labour, in order to i) enhance employment and ii) produce an asset (either physical or social), with the overall objective of promoting social protection.*<sup>23</sup>

PWP's are most commonly implemented in conditions of extreme poverty or seismic shifts in a nation's economy prompted by war,

---

<sup>21</sup> Jill Jesson, Lydia Matheson and Fiona M. Lacey, *Doing Your Literature Review: Traditional and Systematic Techniques*. (London: Sage, 2011).

<sup>22</sup> McCord is a prominent researcher in the field of PWP's. Formerly of the South African Labour Development Research Unit (SALDRU) at the University of Cape Town, McCord is now a researcher at the Overseas Development Institute that contributes much to the discourse around Public Works Programme Design.

<sup>23</sup> Anna McCord, *A Typology for Public Works Programming*. (London: ODI, 2008).

famine, market collapse or conditions of structural unemployment.<sup>24</sup> PWP's are one form of Active Labour Market Programmes (ALMP).<sup>25</sup> ALMP's stand in contrast to "passive" programmes that provide direct transfer of assets (typically cash or food) to beneficiaries as a social safety net in times of unemployment.<sup>26</sup> These programmes are "active" in many different ways,<sup>27</sup> with goals ranging from dedicated training programmes and job search assistance, to public works programmes with labour-intensive infrastructure goals.



**Figure 2.2** WPA "Jewel Box" Greenhouse in St. Louis, Missouri USA

It is widely held that the first large-scale Public Works Programme to be established was the *New Deal* programme in the United States in the 1930's<sup>28</sup>. Emerging from the Great Depression, President Franklin D. Roosevelt's administration recognized the need to stimulate job opportunities amidst high levels of unemployment and discontent. Programs developed included the Works Progress Administration (WPA) and the Civilian Conservation Corps (CCC), both of which put out-of-work Americans to productive labour on infrastructure projects. During the period from 1935 to 1943 this programme produced a large number of new construction related projects, including an array of public buildings ranging from park houses and schools to libraries and armories<sup>29</sup>. While elements of the CCC included a modicum of

---

<sup>24</sup> Carlo del Ninno, Kalanidhi Subbarao and Annamaria Milazzo, "How to make Public Works Work: A Review of the Experiences," *Social Protection and Labor. World Bank.*, no. NO. 0905 (May 2009).

<sup>25</sup> Amit Dar and Zafiris Tzannatos, *Active Labor Market Programs: A Review of the Evidence from Evaluations*. (Washington D.C.: Social Protection, World Bank, 1999).

<sup>26</sup> Peter Auer and Janine Leschke, *Active Labour Market Policies Around the World: Coping with the Consequences of Globalization*. (Geneva: International Labour Organization, 2005).

<sup>27</sup> See Appendix B.1 for a list of ALMP types.

<sup>28</sup> Ibid.

<sup>29</sup> Robert D. Leighninger Jr, "Cultural Infrastructure: The Legacy of New Deal Public Space," *Journal of Architectural Education* 49, no. 4 (1996), 226-236.

Leighninger describes: "The accomplishments of all of these agencies were enormous. The Final Report on the WPA Program, 1935-43 claims 40,000 new and 85,000 improved buildings. This includes 5,900 new schools; 9,300 new auditoriums, gyms, and recreational buildings; 1,000 new libraries; 7,000 new dormitories; and 900 new armories, 400 of which were also community centres and recreational buildings."

training for workers,<sup>30</sup> these programs primarily focused on employing already skilled people through economic stimulus.

Since this early example, governments around the world have implemented a range of PWP's.<sup>31</sup> McCord summarizes the types of PWP's according to four categories:

**TYPE A:** *PWP's offering a single short-term episode of employment*

**TYPE B:** *Large-scale government employment programmes which may offer some form of employment guarantee*

**TYPE C:** *Programmes promoting the labour intensification of government infrastructure spending*

**TYPE D:** *Programmes which enhance employability<sup>32</sup>*

By the classifications above, the EPWP in South Africa is a Type A programme offering a single short-term episode of employment. The characteristics of the programme will be further discussed in Chapter 4. PWP design and goals must respond to a nations unique economic problems to achieve success.

*There is little value in providing short-term or one-off employment to households experiencing cyclical or chronic food insecurity in the hope that this will have a significant impact on productivity (or poverty). Despite this, most PWPs implemented in sub-Saharan Africa, including many with 'productive' objectives, provide this limited form of support.<sup>33</sup>*

---

<sup>30</sup> Robert Allen Ermentrout, *Forgotten Men: The Civilian Conservation Corps*. (New York: Exposition Press, 1982).

From this excerpt: "The 1937 law (Public Law No. 163) mandated the inclusion of vocational and academic training for a minimum of 10 hours per week."

<sup>31</sup> See Appendix B.2 for a table of global PWP's.

<sup>32</sup> McCord, *A Typology for Public Works Programming*.

<sup>33</sup> Anna McCord, *Social Protection Toolsheet*. (London: Overseas Development Institute, 2012).

Among a vast range of global programmes<sup>34</sup>, two programmes in particular have received international attention: the Productive Safety Nets Programme (PSNP) in Ethiopia and the Mahatma Gandhi National Rural Employment Guarantee Scheme (MGNREGS) in India.<sup>35</sup>

The PSNP is a programme designed to enroll families for a period of five years into an employment guarantee scheme.<sup>36</sup> It is intended to provide income relief during periods of drought. The programme is designed to “graduate” families through the programme in this time<sup>37</sup>, thus avoiding indefinite expenditure and making room for new beneficiaries.

The MGNREGS, founded in India 2005, is also designed to be a long-term Employment Guarantee. This programme is built on a guarantee of 100 days of work per year. The massive scale of this programme enables a large constituency to participate. Approximately 45 million workers utilize this social safety net annually.<sup>38</sup> The work component of the programme is primarily focused towards ongoing farm and water conservations activities.<sup>39</sup>

In contrast, citing an EPWP report in 2008 that the EPWP had only reached 11 percent of the officially unemployed, researcher Charles Meth suggests that the programme in South Africa is nowhere near sufficient in scale to address the need.<sup>40</sup>

---

<sup>34</sup> See Appendix B.1 for Global List of PWP's

<sup>35</sup> Ibid.

<sup>36</sup> Ibid.

<sup>37</sup> Camilla Andersson, Alemu Mekonnen and Jesper Stage, "Impacts of the Productive Safety Net Program in Ethiopia on Livestock and Tree Holdings of Rural Households," *Journal of Development Economics* 94, no. 1 (2011), 119-126.

<sup>38</sup> McCord, *Social Protection Toolsheet*. 1

<sup>39</sup> [indiawaterportal.org](http://www.indiawaterportal.org), "50% of MGNREGS Reserved for Water Conservation Work." <http://www.indiawaterportal.org/articles/50-mgnregs-reserved-water-conservation-work> (accessed 8/26/2015, 2015).

<sup>40</sup> Charles Meth, "Employer of Last Resort? South Africa's Expanded Public Works Programme (EPWP)," (2011). 11

McCord, in the *Social Protection Toolsheet*<sup>41</sup> outlines three primary “vectors” of participant assistance:

- wage earning**: how much earned for how long
- skills development**: what type of skills are taught and how
- asset creation**: what is built and it's use to the labourers

These three vectors echo the structure of the overall EPWP goals and form a helpful framework when closely examining the EPWP within architectural projects.

## Wages

In Figure 2.5 World Bank researcher Kalanidhi Subbaroa categorizes a series of programmes according to the wage paid in relation to minimum wage<sup>42</sup>. The challenge of wage setting in PWP's is to find the critical wage level that is enough to incentivize enrollment of the poorest of the poor. Care must be taken to ensure the wage earning is sufficient to enable the provisions of necessities but not so high as to attract people away from other job opportunities in the open market.<sup>43</sup>

680	May 1997	Amer. J. Agr. Econ.
<b>Table 1. Public Works: Program Wage (PW), Minimum Wage (MNW), and Market Wage (MW) in Selected Countries</b>		
Country	Program	PW in Relation to MNW and/or MW
Bangladesh	Cash For Work, 1991–92	PW < MW
India	(a) Cash For Work, JRY, 1991–92	PW = MNW > MW
	(b <sub>1</sub> ) MEGS: up to 1988	PW = MNW < MW
	(b <sub>2</sub> ) After 1988	PW = MNW > MW
Pakistan	IGPRA' III, 1992	PW < MW
Philippines	Cash For Work 1990	PW > MW
	Food For Work 1987	PW** > MW
Botswana	Cash For Work	PW < MNW, but > MW
Kenya	Cash For Work, 1992–93	PW = MNW > MW
Chile	Cash For Work 1987	PW < MNW = MW

Source: Compiled from Subbarao, et al. (1996).  
 Note: \* = IGPRA: Income Generation Program For Refugee Areas, funded by UN Agencies; \*\* = program wage includes cash wages plus the monetary value of food supplied by the program.

**Figure 2.3** Subbaroa Table of Wages

The harsh economic reality of those targeted to work within PWP's is reflected on by Meth:

*Although participation in the EPWP in South Africa is voluntary, the absence of any other social protection against unemployment could be argued*

<sup>41</sup> McCord, *Social Protection Toolsheet*.

<sup>42</sup> Kalanidhi Subbarao, "Public Works as an Anti-Poverty Program: An Overview of Cross-Country Experience," *American Journal of Agricultural Economics* (1997), 678-683.

<sup>43</sup> Ibid.



*to amount to implicit coercion- accept an EPWP job opportunity or go without.*<sup>44</sup>

This echoes the observations by urbanist and researcher Abdul Maliq Simon that "For many urban residents, life is reduced to a state of emergency."<sup>45</sup> In the context of South Africa, social assistance grants are the primary means available for those in poverty, yet many do not qualify for any of the seven grants currently on offer. This means that for the unemployed ineligible for grants the EPWP opportunities can be their only source of income.<sup>46</sup>

Adato and Haddad's study of seven PWP's in the Western Cape yielded a broad perspective on the inner-workings of PWP's.<sup>47</sup> Through their extensive interviews, a street-level view of public-works programmes emerges. Their study also names key components of the inter-personal dynamics within PWP's. Critically, the racial dimension of unemployment in South Africa is well recognized.

*In all provinces, Africans are the most likely to be unemployed. It is this racial patterning of poverty and unemployment that distinguishes South Africa from other developing countries, a legacy of apartheid...*<sup>48</sup>

## Training

Meth describes the nature of the individual EPWP work opportunity, which averages 4-6 months and involves 8-12 days of training<sup>49</sup>. This report also calls into question the political motives at

---

<sup>44</sup> Meth, *Employer of Last Resort? South Africa's Expanded Public Works Programme (EPWP)*

<sup>45</sup> Abdou Maliq Simone, *For the City Yet to Come: Changing African Life in Four Cities*. (Durham, North Carolina: Duke University Press, 2004).

<sup>46</sup> The available Social Assistance grants according to sassa.gov.za are the following: Social Relief of Distress, Grants-in-aid, Child Support Grant, Foster Care Grant, Care Dependency Grant, War Veteran's Grant, Disability Grant, Grants for Older Persons.

<sup>47</sup> M. Adato and L. Haddad, "Targeting Poverty through Community-Based Public Works Programmes: Experience from South Africa," *The Journal of Development Studies* 38, no. 3 (02/01; 2015/05, 2002), 1-36.

<sup>48</sup> Ibid. 5

<sup>49</sup> Meth, *Employer of Last Resort? South Africa's Expanded Public Works Programme (EPWP)*

work in overselling the programme's outcomes, including analysing early government claims of the programmes success of "halving unemployment". McCord questions the lofty goal implied in the training process.

*The implicit assumption is that workers will metamorphosis from unskilled workers to skilled workers for whom there is unmet demand.*<sup>50</sup>

She cites a structural flaw in the design of the programme when it is characterized as a supply side intervention where there is no demand,

*...it is unlikely that participation in the EPWP programme will have any positive impact on labour market performance, as there is no or minimal unmet demand for low and unskilled labour.*<sup>51</sup>

Nonetheless even in the limited scope of much of the EPWP training the delivery of accredited certification can empower beneficiaries with some tangible evidence of their efforts and learning. Citing an unpublished paper<sup>52</sup> McCord highlights the importance of tangible training outcomes,

*Ndoto & Macun attribute this failure among workers to value training in part to the fact that workers were 'not presented with any form of certification as a form of proof that they were indeed trained, especially on technical skills'.*<sup>53</sup>

Mbuso Moyo's Masters thesis at the University of Witwatersrand provides one of the few available "tracer studies" related to the EPWP. Five years after completion of an EPWP project in Modimola in the Limpopo province, Moyo followed up with 32 of 480 EPWP project participants to see the long-term outcomes.

---

<sup>50</sup> Anna McCord, "A Critical Evaluation of Training within the South African National Public Works Programme," *Journal of Vocational Education and Training* 57, no. 4 (2005), 563-586.

<sup>51</sup> Ibid. 563

<sup>52</sup> M. Ndoto and I. Macun, "World Wide Fund for Nature Rapid Socio-Economic Survey of Working for Wetlands," *Unpublished Monograph. Johannesburg: CASE* (2005).

<sup>53</sup> McCord, *A Critical Evaluation of Training within the South African National Public Works Programme*, 563-586

97% responded they were “unemployed and doing nothing” with piecemeal work or grants being the lone means of survival. Of those contacted in the research, 61% who received training did not receive a certificate.

*I can dig and shovel and do construction work and get experience from all that I do but I will have a problem when I apply for other jobs because I do not have a certificate to show that I am qualified in construction [work]. (Female Modimola EPWP participant, December 2012)<sup>54</sup>*

Moyo's study is useful for the intimate participant level view it provides. It also raises the issue of certification and documentation of training that will be persistent in the evaluated projects of this thesis.

### **Community Work Programme**

In 2007 an experimental new programme called the Community Work Programme (CWP) was initiated under the umbrella of the larger EPWP programme. Developed through the South African Office of the Presidency and lead by development strategist Kate Philip<sup>55</sup>, the programme has emerged from early pilot stages and has steadily increased in size. This programme distinguishes itself from the traditional EPWP in its arrangement as an Employment Guarantee Scheme<sup>56</sup> to provide continuous part time work for participants. This is built in response to conditions of structural inequality in South Africa:

*Structural inequality makes employment creation difficult - and unemployment further deepens inequality. Keynes argued that unemployment is a function of economic cycles and is not the 'fault' of the individuals directly affected; as a result, the costs of unemployment need to be treated as*

---

<sup>54</sup> Mbuso Moyo, *How Effective is EPWP Employment in Enhancing the Employability of Participants Once they Exit these Programmes? the Case of the Modimola Integrated Expanded Public Works Programme (EPWP), North West Province.* (2013).

<sup>55</sup> For a quick primer on the Community Work Programme see video on <http://www.tips.org.za/community-work-programme>

<sup>56</sup> Philip, *Inequality and Economic Marginalisation: How the Structure of the Economy Impacts on Opportunities on the Margins*

*social costs, with the burden shared by society as a whole.*<sup>57</sup>

The CWP is directly modeled on India's MGNREGS. Functionally, this means employees are guaranteed employment for 2 days per week or 8 days a month for the duration of their enrollment in the programme.<sup>58</sup> In the Case Studies of this thesis the challenges of employment discontinuity within the EPWP model will emerge.

### **Labour Intensive Construction**

Robert McCutcheon, a South African civil engineer, helped develop a systematic method of analysing road construction thru labour-intensive means. In an industry prone to expensive equipment, his argument that well coordinated labour-intensive construction could match the engineers' key mandates of time, cost and quality, was countercultural. McCutcheon confronts what he calls the "Four lies" of labour-intensive construction:

- Costs more
- Takes Longer
- More difficult to manage
- Results in very low quality of product.

In addition he warns of the perception among some professionals that labour-intensive work is backwards and against progress.<sup>59</sup> Important for this thesis, McCutcheon also acknowledges the creativity involved in designing work, stating; "imagination is certainly required in order to find ways to create employment."<sup>60</sup>

McCutcheon explained both what employment-intensive construction *is* and what it *is not*.<sup>61</sup> A sharp distinction is drawn between 'project' vs. 'programme' approaches. He places important

---

<sup>57</sup> Ibid.

<sup>58</sup> Kate Philip, *The Community Work Programme in South Africa* (2009).

<sup>59</sup> R. McCutcheon, "The Generation of Productive Employment Opportunities for the Unskilled: Principles, Potential and Pitfalls of Labour-Intensive Construction" (2008). 7

<sup>60</sup> Robert McCutcheon, "An Introduction to Employment Creation in Development and Lessons Learned from Employment Creation in Construction." *Urban Forum* 12, no. 3 (2001), 263-278.

<sup>61</sup> Ibid.

distinction between crisis intervention and long-term programme design. McCutcheon emphasises the time required to develop a meaningful and systematic national programme. He describes programme development in 4 phases:

1. Orientation
2. Preparatory Work
3. Pilot Training
4. Expanded training/national programme deployment.<sup>62</sup>

McCutcheon draws on significant experience in the development of long-term road-building programs in Botswana and Kenya to spell out the key elements that contribute to programme success.<sup>63</sup>

Civil Engineer Ron Watermeyer's work on assessment of labour-intensive road construction contributes to a method of assessment and research in this area. Figure 2.4 summarizes his methodical approach evaluation the employment potential of various labour-intensive road building techniques. In this table "plant-based" refers to industrial elements vs. labour based construction. Here an important precedent is set for the unit of measure in labour-intensive construction. Man-hours per square metre for each of the methods is used as the key metric. This forms a helpful reference for measurement within architectural projects in this thesis.

**Table 2: The employment potential of various roadwork activities (Watermeyer and Band, 1994)**

ACTIVITY	THICKNESS (mm)	MANHOURS TO PRODUCE AND CONSTRUCT (manhours/m <sup>2</sup> )	
		PLANT-BASED	LABOUR-BASED
Road bed preparation (R&R)	-	0,033	0,350
Gravel wearing course (G5)	125	0,160	1,000
Gravel wearing course (G4)	150	0,192	1,200
Base course (G4)	150	0,192	1,200
Base course (G3)	125	0,165	NA
Subbase (G6)	150	0,192	1,200
Waterbound macadam base course	100	1,040	1,370
Slurry	15	0,110	2,011
Asphalt	25	0,140	1,170
Concrete blocks	60	0,930+	2,120#
Cast insitu (plastic cell) blocks	-	0,38	1,80

+ Factory produced block paving  
# Blocks manufactured on site using employment-intensive methods

**Figure 2.4** Watermeyer Table of Roadwork Activities

<sup>62</sup> Ibid.

<sup>63</sup> Robert McCutcheon, *Labour-Intensive Construction and Maintenance in Sub-Saharan Africa. A Paper for Discussion at the World Bank on the 7th April 2008.*

Furthermore Watermeyer and others contributed to the compiled CIDB volume which outlines a broad range of labour-intensive research including the feasibility of material production for site-based housing construction. This includes estimated inputs in the production and assembly of masonry units of various types.<sup>64</sup>

Regarding the management of labour-intensive construction, McCutcheon and Fitchett articulate that a key role belongs to the hands-on site supervisor, whom they define as:

*the person who ensures that the work is being performed properly in both technical and organizational terms; all day, every day.*<sup>65</sup>

Indeed, in the Case Studies of this thesis the challenges of site management will come to the forefront. It is the EPWP's focus on labour-intensive construction which allows for overlap with architectural research.

### Architectural Research

Architecture for the Poor, is a seminal book on the relationship of architects and designers to labourers and local culture.<sup>66</sup> Egyptian architect Hassan Fathy expounds on his work in the design and construction of New Gourni, a large-scale town development near the city of Luxor, Egypt. This publication painstakingly records the architect's role within a complex Egyptian bureaucracy developing in poor areas.

This thesis attempts similarly to reveal both the social and physical context influencing the making of architecture in contemporary South African. Though Fathy ultimately experienced a great deal of

<sup>64</sup> CIDB, *Labour-Based Methods and Technologies for Employment-Intensive Construction Works*. (Pretoria: CIDB, [2005]).

<sup>65</sup> RT McCutcheon and A. Fitchett, "The Critical Importance of the Hands-on Site Supervisor." (Johannesburg: University of the Witwatersrand, WORK2005: Second International Conference for Employment in Development, 2005).

<sup>66</sup> Hassan Fathy, *Architecture for the Poor: An Experiment in Rural Egypt* [Gourni : a tale of two villages] (Chicago: University of Chicago Press, 1973), 233.

16. The first inclined ring is completed



**Figure 2.5** Fathy diagram of a worker building a vault

failure in his efforts, he unflinchingly details his own bureaucratic demise, warning young architects along the way:

*When an architect feels a sense of mission, he will inevitably experience a great deal of resistance to his purpose. If he wants to build for the people, he must understand from the outset*

<i>Cost of Rubble Masonry Less than 0.70 m. Width.</i>							
Item	Labor and Materials	No.	Wage PT	Total PT	Daily Output	Cost per 1 m <sup>3</sup>	Remarks
1	Mason	2	40	80	4 m <sup>3</sup>	20.0	
2	Workman	2	10	20		5.0	
3	Helper (boy)	2	8	16		4.0	For transp. of mortar
4	Workman mixing mortar	½	15	7.5		2.0	One for each 2 teams
5	Trainee (youth)	1	10	10		2.5	
6	Foreman	¼	10	1		0.25	For 10 teams
7	Water					2.00	
8	Stone					50.00	
9	Mortar					3.5	
						89.25 PT say 90 PT	

**Figure 2.6:** Table of Costs

*that he has a bitter struggle ahead of him.*<sup>67</sup>

A key aspect of Fathy's work is the meticulous documentation of the development and construction process. His attention to detail and statistical account leaves a useful trail for future generations<sup>68</sup>.

*In building Gourni we would need millions of bricks. To produce them on this scale involved working out methods of ensuring that the output was kept high and that the quality was consistently good, as well as ways of controlling the cost of labour. Our brickyard was designed to this end.*<sup>69</sup>

Like Watermeyer's roadwork<sup>70</sup>, Fathy provides statistical proof of the strategies and decision-making within a labour-intensive construction project.

## Housing

<sup>67</sup> Ibid. 185

<sup>68</sup> See Appendix B.1 for a sample page from Fathy's documentation.

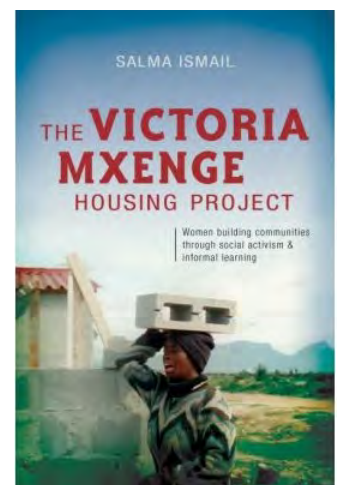
<sup>69</sup> Ibid. 90

<sup>70</sup> RB Watermeyer and NG Band, "The Development of Small Scale Enterprises, Skills, Entrepreneurship and Employment Opportunities through the Provision of Housing." *Working Group 3* (1994).

John F.C. Turner's *Housing By People* provides an interesting dimension to understanding the government's role in the development of housing. Memorably, Turner declares "*Housing is what it does*"<sup>71</sup> and suggests that the role of government is to focus resources on larger scale infrastructure (power supply, roads) and allow individuals to act autonomously in the creation of their housing. Turner critically questions the power at play in housing by asking "*who decides and who provides what for whom?*"<sup>72</sup> This work calls for a more community empowered building process, a sentiment that underlies several initiatives in South Africa.

An important body of literature involves the intimate scale analysis of housing development processes in the context of South Africa. A few key books are Salma Ismail's<sup>73</sup> recent study of *The Victoria Mxenge Housing Project* and the work of UCT researcher Fiona Ross in her book *Raw Life New Hope*<sup>74</sup> which chronicles the transition of one Cape Town community from informal to formal housing. Additionally, Marie Huchzermeyer<sup>75</sup> provides a comprehensive overview of issues related to South Africa's informal settlements.

Within the Victoria Mxenge Housing Project women lead, initiated and developed a housing project. Here the threads of Turner's ideas are localised in SA. This project became the forerunner to the launch of the People's Housing Process, a community-lead development approach now utilized throughout the country. In a cooperative, sweat-equity model, the women, without any Public Works Programme and only an architectural advisor, designed and built their own homes and went on to assist in developing over 5,000 homes. Here women lead the on-site production of materials



**Figure 2.7** *The Victoria Mxenge Housing Project* Cover.

---

<sup>71</sup> John FC Turner, *Housing by People: Towards Autonomy in Building Environments*. (New York: Pantheon Books, 1977).

<sup>72</sup> Ibid. 154

<sup>73</sup> Salma Ismail, *The Victoria Mxenge Housing Project: Women Building Communities through Social Activism and Informal Learning*. (Cape Town: University of Cape Town Press, 2015).

<sup>74</sup> Fiona C. Ross, *Raw Life, New Hope: Decency, Housing and Everyday Life in a Post-Apartheid Community* (Cape Town: Juta and Company Ltd, 2010).

<sup>75</sup> Marie Huchzermeyer and Aly Karam, *Informal Settlements: A Perpetual Challenge?* (Cape Town: Juta and Company Ltd, 2006).



including concrete blocks, wooden trusses and cement roof tiles. The approach of Ismail is to trace the sociological development of the project and the women's evolving organizational methods within their community and beyond.<sup>76</sup>



Figure 2.8 Grameen House

The Grameen Bank Model for Housing in Bangladesh furthermore represents a massive scale project lead by empowered people, mainly women with no formal architects involved.<sup>77</sup> Over 40,000 houses were created in five-years with little to no architect involvement, earning the project an Aga Khan Award for Architecture in 1989. Here the primary innovation is in a micro-finance tool that enables the very poor in Bangladesh to self-finance their own housing improvements.

*As Grameen houses show, architecture could become a crucial addition to the list of social and economic variables that enhance both women's welfare and their ability to envision themselves.*<sup>78</sup>

Adnad Morshed's analysis of the Grameen Housing model also explores the theories of Michael Foucault and Edward Soja and notes, "histories of space and their peculiar complicity with the structures of uneven power relationships in society remain unwritten."<sup>79</sup> The relation of space and power will be central to the understanding of the Ocean View Housing Development in this thesis.

### Public Interest Design<sup>80</sup>

Recent discourse within the architecture profession has focused on the latent potentials within architectural design, including economic empowerment, skills development and social advancement for the poor, along with improved building stock. This trend is seen in the

---

<sup>76</sup> Ismail, *The Victoria Mxenge Housing Project: Women Building Communities through Social Activism and Informal Learning*.

<sup>77</sup> Muhammad Yunus, *Banker to the Poor*. (India: Penguin Books, 2007).

<sup>78</sup> Adnan Morshed, "Building Empowerment: Female Grameen Entrepreneurs in Rural Bangladesh," *South Asia: Journal of South Asian Studies* 37, no. 4 (10/02; 2015/03, 2014), 605-624. 623

<sup>79</sup> Ibid. 623

rise of what has been called in recent years “Public Interest Design”. This term is widely contested and the boundaries of naming include “humanitarian architecture”, “impact design”, “design for the 99%”, “Social Architecture”, “Community Architecture” etc. These terms have been captured in popular books<sup>81</sup> such as Good Deeds Good Design, ProBono, Design Like You Give a Damn and a book particularly relevant to this study, Afritecture.

Written by Andres Lepik and published in 2010, Afritecture is a showcase of 26 select architectural projects throughout the African continent. Along with an accompanying exhibit at the TU Munich in 2013, Afritecture has had a prominent role in the public perception of African architecture. A theme which emerges in over half of the twenty six projects featured in Afritecture is the mention of economic empowerment of the community through the creation of skills training programs, new work opportunities, and local hiring in the making of buildings. This pattern provides support for DesignWork as a real and present phenomenon.<sup>82</sup>

Among the architects featured in Afritecture MASS Design Group is perhaps the most well publicized and marks a contemporary example of a new form of architectural practice<sup>83</sup> utilizing a non-profit business model with greater focus on the social impacts of the building process. In a self-published book, Empowering Architecture, MASS co-founder Alan Ricks describes their process of developing a localised approach to building the Butaro Hospital that was labour-intensive:

*The building process is leverage for community impact, serving as an engine of education, training, and job creation that reverberates far beyond the structure itself.*<sup>84</sup>

---

<sup>81</sup> See Appendix B.2 for booklist from PublicInterestDesign.org

<sup>82</sup> See Appendix B.3 for a sampling of project description methods

<sup>83</sup> For a survey of architectural practices in the US under the rubric of “Public Interest Design” see 2014 study “Wisdom from the Field: Public Interest Architecture in Practice “

<sup>84</sup> Michael Murphy and Alan Ricks, *Empowering Architecture: The Butaro Hospital, Rwanda*. (Boston.: MASS Design Group, 2012). 31

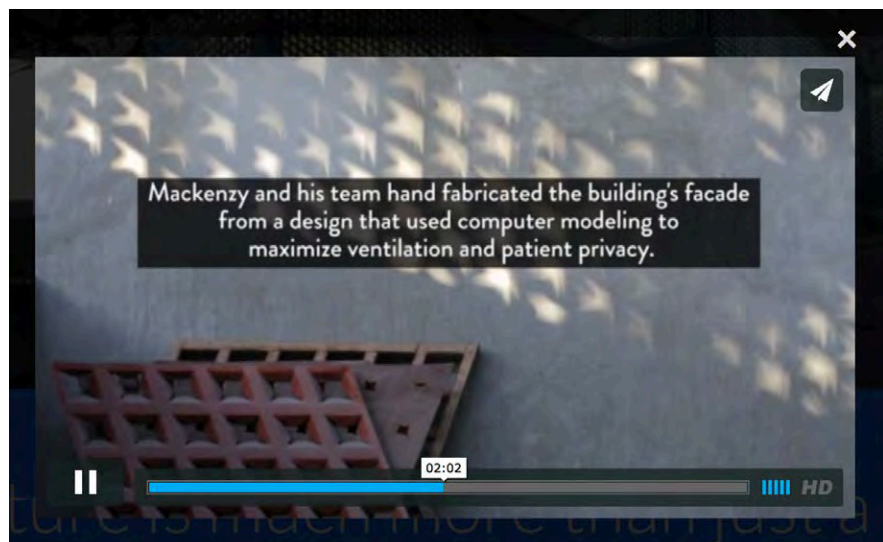


**Figure 2.9** Afritecture cover



**Figure 2.10** Central Market.  
Burkina Faso

In a series of videos called “*Beyond the Building*”, MASS highlights stories of the makers in their projects, from emboldened female stonemasons in Butaro to steel fabricators commissioned to execute intricate and labour-intensive sun-screens at a clinic in Haiti (Figure 2.11). This has spawned what they have called the “Lo-Fab” movement (*locally fabricated*). Here the recognition given to builders points towards a “fair-trade” architecture making visible and publicizing the labour not simply as a means to the end of building construction but the buildings creation as an important step along the path to social change. “We have to use the process of building to rebuild lives.”<sup>85</sup>



**Figure 2.11** Screenshot of MASS Design Group video about Haiti hospital

### South African Architecture

In the context of South African architecture, a few key pieces of literature emerge. Building on the work of McCutcheon, Anne Fitchett's PhD focuses on the potential for furthering employment opportunities within the development of Public Buildings. Fitchett argues that public bodies need to take on the real risks of innovation in developing labour-intensive materials, structural systems and construction processes, while serving as exemplars

<sup>85</sup> MASS Design Group, "GHESKIO Cholera Treatment Center Video." <http://www.massdesigngroup.org/portfolio/ctc/August 26, 2015>).

that can later be absorbed into the private sector as their familiarity becomes entrenched.<sup>86</sup>

Fitchett's dissertation argues against focusing on housing for two reasons. First, she asserts that housing, often realized through self-help schemes, does not allow the scale or duration of work needed for artisan development.

*Of central importance is that very few of the so-called jobs created through housing provision are sustained beyond the duration of the project in any one community; thus there is not enough time to develop marketable skills, resulting in a saturation of low level abilities in any one area.*<sup>87</sup>

Secondly, Fitchett warns that viewing housing as a place of experimentation puts an undue risk on low-income homeowners.<sup>88</sup> The inclusion of the Ocean View Housing development within this thesis challenges this position concerning the relevance of housing to job-training opportunities. Given the prevalence of large-scale RDP housing schemes throughout South Africa,<sup>89</sup> this thesis argues that housing provides a unique opportunity to utilize job-training programs in close proximity to areas with high rates of unemployment to achieve both housing upgrades and skills development.

In an early personal interview, Fitchett suggested that perhaps a 500-unit housing development represents an opportunity to more fully test at a sufficiently large scale the possibilities of job-training on-site.<sup>90</sup> As a result of this discussion, the Ocean View project emerged as a key second example to examine within this thesis.

---

<sup>86</sup> Anne Susan Fitchett, *Skills Development and Employment Creation through Small Public Buildings in South Africa* (2009b).

<sup>87</sup> Ibid. 25

<sup>88</sup> Ibid. 26

<sup>89</sup> See Appendix B.5 for an excerpt of housing projects from 4<sup>th</sup> Quarter 2014/2015 EPWP Reporting

<sup>90</sup> Anne Fitchett, Interview by Author. March 28, 2015.

Fitchett's dissertation included extensive comparative analysis of historical projects of Hassan Fathy in relation to contemporary projects in South Africa, including an independently proposed training school project.<sup>91</sup> This pioneering research helped set the stage for this analysis of the role of the EPWP within architectural projects.

Research from the University of Cape Town's Construction Management department has shed light on key issues within South Africa's Construction Sector. In a study from 2013 Windapo and Cattell conducted a survey-based inquiry into the challenges within the sector. What emerged was a portrait of the concerns of builders in the country, including the cost of materials and the mismatch of available skills and those required for their projects. This is significant for this research since general contractors are often directly affected and responsible for the day-to-day implementation of the EPWP programme within architectural projects.<sup>92</sup>

Finally, it is rare in South Africa for architectural practitioners to also initiate published research. This leaves a limited body of work to draw on from practicing architects in South Africa. However, Cape Town based architect Carin Smuts co-authored with UK researcher Michel Lyons a series of research reports in the early 2000's that focused on studying project-level understanding of community participation practices. The current research draws from this approach and its attention to dynamics within specific projects as a source of broader understanding.<sup>93</sup>

Additionally, in the spirit of Fathy, the work by South African architect/academic Iain Low in Lesotho in the 1980's forms a helpful backdrop to the current study, including the architect's role

---

<sup>91</sup> Fitchett,

<sup>92</sup> Abimbola Olukemi Windapo and Keith Cattell, "The South African Construction Industry: Perceptions of Key Challenges Facing its Performance, Development and Growth," *Journal of Construction in Developing Countries* 18, no. 2 (2013), 65-79.

<sup>93</sup> Michal Lyons, Carin Smuts and Anthea Stephens, "The Changing Role of the State in Participatory Development: From the Reconstruction and Development Programme to Growth, Employment and Redistribution," *Community Development Journal* 36, no. 4 (October 01, 2001), 273-288.

in designing a replicable local construction system for a nationwide school development programme funded by the World Bank. In an essay titled “*Building and Self Reliance*” Low observes:

*Self-reliance represents an alternative for transformation and development. As a strategy of empowerment, it seeks to locate the means of production in the local domain, and to reinforce and maintain energy and effort at the lowest levels of the economic hierarchy, in order to benefit those who are most in need.*<sup>94</sup>

A site visit to Lesotho revealed the vast implementation and regional adaptation of plans developed by Low. This emphasis on locating production in the local domain will be a useful reference point in the sustainability of both materials and methods used in the projects assessed in this thesis.



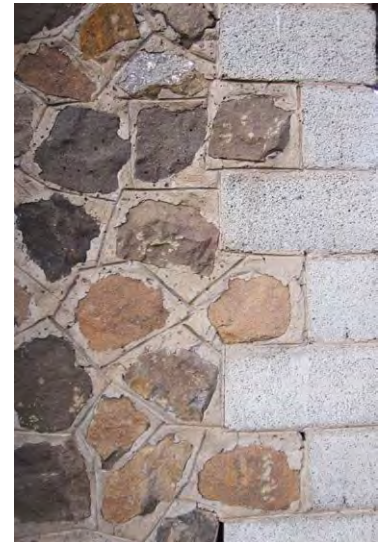
**Figure 2.13** Panoramic View of rural Lesotho school

### Key Gaps Within Existing Literature

This Scoping Literature Review has focused on both global and South African precedent in the area of public works programmes and architecture. The following areas need further research:

#### **GAP #1. Tracer Studies of the EPWP to Identify Participant Outcomes**

With the exception of Moyo’s 2013 tracer study of the Modimola Integrated EPWP in the North West Province there have been few attempts at tracer studies concerning the longer-term effects of the EPWP job creation programme. This is a serious gap considering



**Figure 2.12** Detail of Lesotho construction system utilizing standard Concrete Block corner with local stone infill.

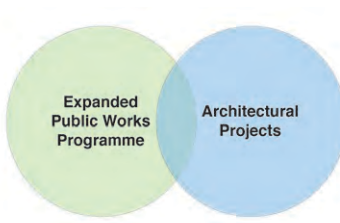
<sup>94</sup> Low, *Blank: Architecture, Apartheid and After. Essay: Building and Self-Reliance*. 334



the sizable financial resources being channeled towards the EPWP in South Africa and the assumptions concerning outcomes.<sup>95</sup>

### **GAP #2. Project Level Research of the EPWP**

Given the large scale of implementation and the complexity of policy development and administration, much of the literature review revealed higher-level economic analysis and structural critique of the programme. There is very little available research concerning the individual project level implementation of the EPWP. This thesis contends there is another layer of understanding to be gained in studying the implementation of the EPWP within unique project contexts. Fathy's narrative of projects in New Gourn, including bureaucratic struggles, architectural intent and material development serve as a useful precedent.



**Figure 2.14**

Topical Venn Diagramme

### **GAP #3. Analysis of the Links Between Architectural Design and EPWP goals**

While popular media reports often associate the connection between architects and job-creation, the academic literature addressing the intersection of these two elements is scarce, revealing potentially fertile territory for research and the contribution of new understanding for both fields.

This thesis will seek to take some small steps towards studying the links between the EPWP programme goals and architectural projects through a pair of project level investigations.

---

<sup>95</sup> R1.9 billion was allocated to EPWP within the 2015 National Treasury Budget

## CHAPTER 3: Research Methodology

*“The only way to find a larger vision is to be somewhere particular.”*

*-Jeremy Till<sup>96</sup>*

### Research Approach and Objectives

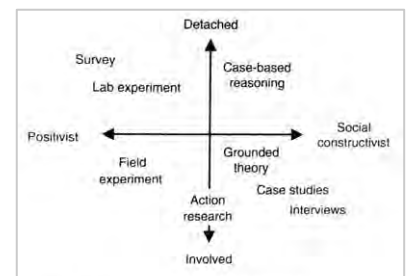
DesignWork is a phenomenon that is highly context dependent. The complex social conditions from which built works of architecture emerge warrant extensive research to understand. Given this context, from the range of Research Methods found in Figure 3.1 a Case Study method was selected for its relevance to systematically studying contemporary phenomena. Robert Yin, in his seminal book Case Study Research, defines the Case Study as:

*an empirical inquiry that investigates a contemporary phenomenon (the “case”) in depth and within its real world context, especially when the boundaries between phenomenon and context may not be clearly evident.<sup>97</sup>*

While this method is emerging and is at times misunderstood, in its basic form it shares much in common with more traditional research methods:

*Like other methods, it (case study research) is a way of investigating an empirical topic by following a set of desired procedures.<sup>98</sup>*

This Case Study focused on DesignWork in a select context: architects designing for the EPWP within architectural projects in South Africa. The Case Study Method was used to discover



**Figure 3.1** Research methods diagramme

<sup>96</sup> Jeremy Till, *Architecture Depends*. (Cambridge, Massachusetts: MIT press, 2009).

<sup>97</sup> Robert K. Yin, *Case Study Research: Design and Methods* (USA: Sage publications, 2013).

<sup>98</sup> Ibid. 23



evidence about the function of the phenomena, not to verify preconceived assumptions.

A key aspect of Case Study research is the Unit of Analysis.<sup>99</sup> In this thesis there was a choice of several scales of research. Based on the literature review and the gaps identified in the research this study chose to focus on the unit of a single architectural project involving DesignWork and the EPWP. This Case Study proceeded chronologically according to three main objectives:

**Objective 1. Develop an understanding of the EPWP programme goals and structure within architectural projects.**

The initial arc of this thesis traces the historical development of the EPWP and explores this programmes unique structure to shed light on how the EPWP is designed to work within architectural projects.

**Objective 2. Utilize select Case Studies to investigate the links between architectural design and work opportunities.**

Each of the two projects will be examined utilizing (1) semi-structured field interviews, (2) site visits, and (3) data collection. A detailed description of each project and the display of key project data will establish a baseline from which to consider commonalities and differences, with reflection on how these two examples inform an emerging understanding of future architectural strategies.

It is important here to distinguish that the use of two embedded units of analysis is not to be mistaken for an attempt at Sampling Methodology, a separate Research Methodology with different design concerns than the Case Study Method here employed.

*Any application of this sampling logic to case study research would be misplaced. First, case studies are not the best method for assessing the prevalence of phenomena. Second, a case study would have to cover both the phenomenon of interest and its context, yielding a large number of potentially relevant variables. In turn, this would*

---

<sup>99</sup> Ibid.

*require an impossibly large sample of cases-too large to allow more than a superficial examination of any given case.*<sup>100</sup>

### **Objective 3: Collect and Analyse Project Data**

Two projects will be analysed to identify lessons for future DesignWork projects. Ultimately this analysis will be used to revisit the initial Research Questions. Finally, recommendations of areas for future research will also be described.

The results of this investigation will be reported to develop concrete reference examples to build an understanding of the EPWP in architectural projects. To gain a rounded perspective on the chosen phenomenon, this research seeks understanding through both qualitative and quantitative means. Accordingly, qualitative analysis through narrative description of the two embedded units of this thesis will be followed by quantitative assessment of the data. It was not known at the outset of the research what data to collect or how. This emerged within the process to become clear.

### **Research Ethics**

Before proceeding with this research project official documentation was submitted to the University of Cape Town. This included a declaration of the research plan and acknowledgement of the University of Cape Town's Ethics Guidelines.<sup>101</sup> In addition, as requested by the Director of Infrastructure at the EPWP a letter was submitted to the EPWP in order to formally proceed with interviews and research of the programme. Within the research process every attempt was made to conduct all site visits, correspondence, and personal interviews with clarity of intent and consistency of process.

---

<sup>100</sup> Ibid. 59

<sup>101</sup> See Ethics Guidelines in Appendix C.1.

### Archival Research

This research began with an iterative refinement of the central research question based on the literature review and archival research of existing documentation in books, scholarly articles, and on the Internet. Additionally, this included a rich variety of popular media sources ranging from YouTube videos, award applications, newspaper articles and more. Next, key project participants were contacted and an initial research trip was taken to Johannesburg, Pretoria, and Mapungubwe National Park.

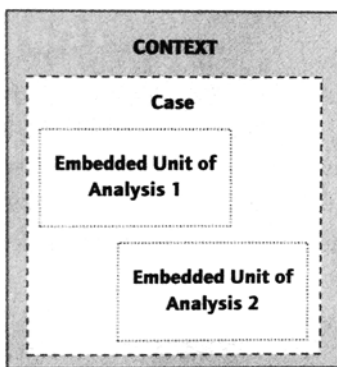


Figure 3.2

Robert Yin Diagramme.

The initial plan was to do preliminary information gathering on three select projects, then to develop one project further as a single example to inform the understanding of the larger case of DesignWork as it relates to the EPWP. As the interviews proceeded, it emerged that despite earlier plans two of the projects considered stood out for different and complementary reasons. It was decided to adopt a more flexible research methodology whereby the central Case Study remains DesignWork within the EPWP but two embedded units of design are included instead of one. (see Figure 3.2)

### Semi-Structured Interviews

Due to the complex nature of each project and the diversity of perspectives and roles, this research relied heavily on semi-structured interviews with key project participants. Preliminary interviews lead to some “snowballing” whereby individuals interviewed suggested other important people to speak with. This was the case in particular with architect Peter Rich, who facilitated contact with several key members of his engineering and site team. These interviews in turn lead to additional connections and interviews. An attempt was made to speak with as many project participants as possible to develop a broad view of each project.<sup>102</sup>

---

<sup>102</sup> See Appendix C.2 for a list of interviews.

### **Interview Procedure**

For each interview the interviewee was contacted via email or telephone to schedule an interview. Each interviewee was informed of the purpose of the study and given two consent forms to sign, after which the interview was audio recorded. Interviews began with ten baseline questions.<sup>103</sup> Based on initial responses additional customised questions were asked at the end. In-person interviews were preferred, though in three cases due to geographical distance Skype calls were initiated. Two of these were Skype video calls with one being audio-only due to bandwidth problems. In all cases vigorous notes were taken during interviews, including impromptu diagrammes and drawings for discussion and future reference.

Additionally, several informal and unrecorded background informational interviews took place. These were primarily with individuals not directly related to the Case Studies but with valuable experience and perspectives that helped develop the research approach.

### **Site Visits**

Site visits were utilized to evaluate the architectural qualities of the buildings being studied in-context. Following the initial trip to Mapungubwe National Park in late March 2015, an investigatory trip was taken to Ocean View. This project was appealing as it was currently under construction. Once adopted as a second project for this thesis, Ocean View afforded an additional source of evidence; direct researcher observations of the project in-process.

### **Researcher Observations**

Ocean View was nearing 50% complete at the time of initiating this research. This allowed direct observation of working conditions, techniques, challenges, and the culture of the job site. These visits included attending a Key Turning Ceremony<sup>104</sup> as well as formal

---

<sup>103</sup> See Appendix C.3. for Baseline Interview Questions

<sup>104</sup> See Appendix C.5 for *People's Post* news article on Key Turning Ceremony

and informal discussions with the project team and workers on site during visits over the course of nine months.<sup>105</sup>

### **Data Collection**

Obtaining the most accurate and official documentation of these projects proved challenging, in large part because this required busy government managers to look into their archives and seek out the most accurate information. While less verifiable statistical information was easily obtained from popular media sources, a decision was made to seek out the most accurate information to represent each project. While this approach guaranteed the most accurate findings, it had the added benefit of making influential project leaders aware of this research, potentially broadening the audience for the findings of this thesis.

Particularly at the Mapungubwe Interpretive Centre, a project completed over five years ago, this meant the records were technically older than SANParks was required to retain. In addition, some records were maintained by the Department of Environmental Affairs and not by SANParks. Ultimately, after semi-structured interviews and formal letters of submission official project data for each of the two projects, as well as from the central office of the EPWP programme was made available.<sup>106</sup>

### **Exclusions/Delimitations**

There were many areas of interest excluded from this thesis due to limited scope of this Master's-level research. This thesis will focus on the explanation of the EPWP as background to assessing the DesignWork that is the central of this thesis. In order to focus this study, description of the internal workings of the EPWP will be limited to elements necessary to address the research objectives. Additionally this thesis will narrow the focus on management structures with particular attention to the role of the architect(s).

---

<sup>105</sup> See Appendix C.6 for Research Timeline.

<sup>106</sup> See Appendix H.3 for information request letters.

With regard to project data collection, it was not possible to effectively collect information about workers outside of the project. As such, speculation on longer-term job prospects will be very limited in this thesis, with the focus instead on the measurable job outcomes within each project.

Finally, the intensity of interviews, site visits and data collection has limited the breadth of this research to only closely analysing two projects. In the future, a more comprehensive research project utilizing a streamlined research procedure could facilitate assessment of a broader range of project

## **CHAPTER 4: Understanding EPWP**

### **Introduction**

To understand the EPWP, it is helpful to examine its history, goals and structure within the South African government. With over 15,000 ongoing projects at the time of publication<sup>107</sup>, the EPWP is a large-scale programme intentionally designed to be adaptable to a wide range of project conditions. For reference, a complete glossary of EPWP terminology is located in Appendix D.1.

### **PART I: History and Institutional Arrangement of the EPWP**

With the emergence of the new democratic government in South Africa in 1994, the Reconstruction and Development Programme (RDP) spanned across all sectors and sought to catalyze visible progress in the new democratic nation. The inclusion of a nation-wide PWP within the RDP was initially launched under the auspices of the National Public Works Programme (NPWP).

According to Sean Phillips, the first director of the EPWP:

*The NPWP had two strategic thrusts. The first was a community-based public works programme (CBPWP) intended to provide rapid and visible relief for the poor, and to build the capacity of communities for development. At its peak, the CBPWP was allocated approximately R350 million per annum, and the programme resulted in the creation of around 130,000 work opportunities between 1998 and 2004.*<sup>108</sup>

At the outset the CBPWP was structured to direct funds to support community level projects through selected community based organizations (CBO's)<sup>109</sup>. Over time this structure would change to

---

<sup>107</sup> EPWP, 2014/2015 Quarterly Reporting Document. Excel Spreadsheet. Department of Public Works, [2015].

<sup>108</sup> Phillips, *The Expanded Public Works Programme (EPWP): Overcoming Underdevelopment in South Africa's Second Economy*. 3

<sup>109</sup> Community Based Organisation (CBO) is a term closely related to Non-Governmental Organization (NGO) or "non-profit" in other countries with certain tax-benefits granted with adherence to requirements

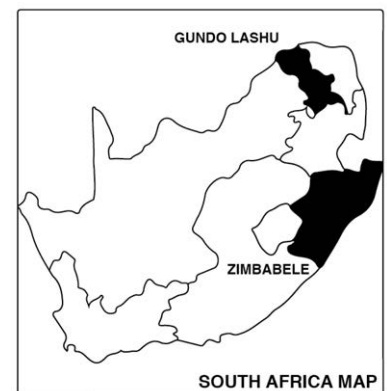
direct the funding to local municipalities to support the execution of local public-works projects.<sup>110</sup>

*The second strategic thrust of the NPWP was the reorientation of mainstream public expenditure towards infrastructure using labour-intensive techniques. However, within the context of major political restructuring, multiple demands on a new government, and an uncertain legal framework for labour-intensive construction, this thrust of the programme failed to gather momentum.<sup>111</sup>*

Managed by government agencies, PWP's are under constant threat of "political restructuring". In fact, changes in political leadership would eventually see the NPWP close, although it would provide important lessons for the EPWP. Ideas from several provincial level PWP's also contributed to the formation of the EPWP. Two influential examples are the Zibambele and the Gundo Lashu.<sup>112</sup>

### **Zibambele**

The Zibambele<sup>113</sup> programme was developed in rural KwaZulu Natal in 2000 and was exclusively focused on the maintenance of rural roads. It enrolled 14,000 participants.<sup>114</sup> The works were administered by the KwaZulu Natal Department of Transport across the entire province. A defining characteristic of this programme was its enrollment of households in poverty, recommended by community level leadership. These households were treated as individual small contractors and enabled the opportunity to work up to eight days a month and receive a subsistence stipend of R 334/monthly.<sup>115</sup> If a family member was ill or died, another could fill in their role, ensuring continuity of the



**Figure 4.1** Map of PWP's

<sup>110</sup> Ibid. 3

<sup>111</sup> Ibid. 4

<sup>112</sup> Anna McCord, *Policy Expectations and Programme Reality: The Poverty Reduction and Labour Market Impact of Two Public Works Programmes in South Africa*. (London: Overseas Development Institute, 2004).

<sup>113</sup> Zulu word meaning "doing it for ourselves" Ibid

<sup>114</sup> Phillips, *The Expanded Public Works Programme (EPWP): Overcoming Underdevelopment in South Africa's Second Economy*.

<sup>115</sup> According to an Inflation Calculator: (<http://www.inflationcalc.co.za>) R 334.00 from January 2000 would be worth R 806.18 in July 2015.



income relief for the family.<sup>116</sup> The ongoing nature of road maintenance was well-suited to the perpetual structure of this programme as an Employment Guarantee Scheme.

### **Gundo Lashu**

The Gundo Lashu<sup>117</sup> programme began in the Capricorn District of the Limpopo province in 2001. Its focus was largely on labour-intensive road construction and it was uniquely structured to develop leadership capacity and training:

*Under the Gundo Lashu programme, 24 aspirant small contractors (of whom 13 are women), each with two higher level supervisors, were selected through an open competitive process to go onto a three year full-time training programme in labour-intensive construction.*<sup>118</sup>

Training was facilitated by technical advisors from the International Labour Organization (ILO).<sup>119</sup> This programme was training intensive and sought to elevate workers to positions of leadership capable of managing small teams. The structure provided leadership-building opportunities and decentralised management structures, thereby increasing local opportunity and building future capacity in the region

### **The Establishment of the EPWP**

In 2003, following the Growth and Development Summit (GDS), government leaders along with key advisors began to formulate a national job-creation programme that would adopt the name the Extended Public Works Programme (EPWP).<sup>120</sup> As outlined in the initial EPWP Five Year Report 2004-2009:

---

<sup>116</sup> Ibid. 5

<sup>117</sup> McCord, *Policy Expectations and Programme Reality: The Poverty Reduction and Labour Market Impact of Two Public Works Programmes in South Africa*. isiVhenda word meaning "Our Victory"

<sup>118</sup> Phillips, *The Expanded Public Works Programme (EPWP): Overcoming Underdevelopment in South Africa's Second Economy*. . 4

<sup>119</sup> Eleanor Momberg, "Gundo Lashu (our Victory). International Labour Office," *World of Work* 70, no. December 2010 (2010), 42-43, 44,45,46. 44

<sup>120</sup> Phillips, *The Expanded Public Works Programme (EPWP): Overcoming Underdevelopment in South Africa's Second Economy*.

*The establishment of the EPWP was announced by former President Thabo Mbeki in his State of the Nation Address in February 2003, and it was launched in 2004 by the Minister of Public Works at the time, Ms. Stella Sicgau. This was done against a backdrop of extreme social deprivation; and a target of creating one million work opportunities for our most vulnerable citizens by 2009 was set.*<sup>121</sup>

Sean Phillips, then Chief Operations officer at the National Department of Public Works, describes goals that emerge from this inception:

*The GDS agreement stated that “EPWPs can provide poverty and income relief through temporary work for the unemployed to carry out socially useful activities. These EPWPs will be designed to equip participants with a modicum of training and work experience, which should enhance their ability to earn a living in future.”*<sup>122</sup>

This programme was designed to create short-term work opportunities, for unemployed individuals, along with training opportunities to improve job outcomes beyond the time of enrollment in the programme. Emphasis was placed on creating work for the most historically disadvantaged individuals, particularly targeting women, youth, and people with disabilities.<sup>123</sup> This targeting of participants for the programme continues today with the 2015 target of 55% women, 55% youth, and 2% disabled. Importantly, with respect to the involvement of the EPWP in the construction sector, this target greatly alters the typical gender ratios diagrammed by the 2011 Gender in South Africa report seen in Figure 4.2.<sup>124</sup> This table shows that while in 2011 12.6% of men

---

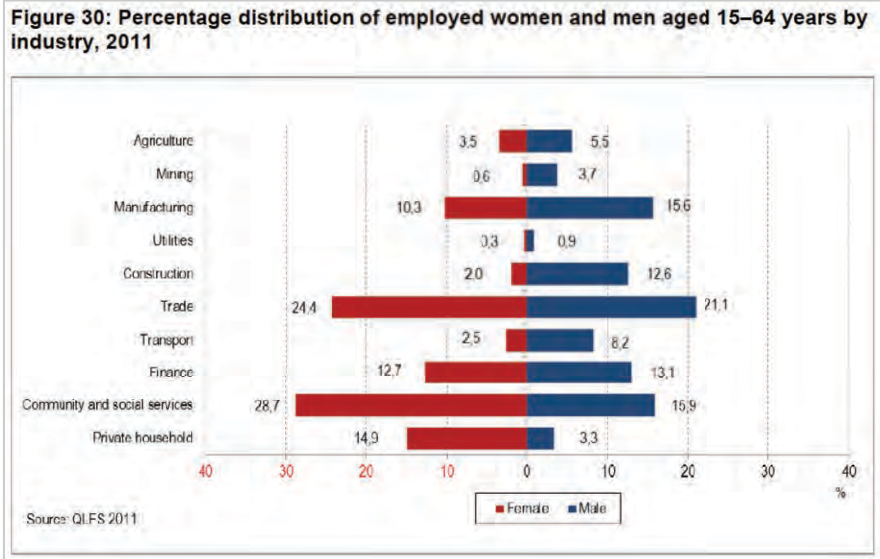
<sup>121</sup> DPW, *EPWP Five Years Report 2004-2009* (Pretoria: Department of Public Works, 2010). . 1

<sup>122</sup> Phillips, *The Expanded Public Works Programme (EPWP): Overcoming Underdevelopment in South Africa's Second Economy*.

<sup>123</sup> *Guidelines for the Implementation of Labour-Intensive Infrastructure Projects Under the Expanded Public Works Programme*, Public Law 3rd Edition, (2015): .

<sup>124</sup> STATS\_SA, *Gender Statistics in South Africa 2011*. (Pretoria: .[2011]).

were employed in the construction industry only 2% of women were employed in the construction industry. The targeting of 55% women to participate in the EPWP, and particularly in construction-related tasks of the EPWP is a great departure from this trend.



**Figure 4.2 Table of Gender Representation in Various Industries**

### Programme Goals

It is important to this thesis to clarify the expressed goals of the EPWP. As a programme now in its Third Phase and over a decade in operation, these can at times be difficult to decipher. Mr. Geoff Doidge, Minister of Public Works at the inception of the EPWP, emphasised the goal of asset creation:

*What is notable about South Africa's EPWP, is that it set out to create work opportunities by means of labour-intensive technologies, while simultaneously building much needed infrastructure. This, in my view, is an excellent example of creating a proudly South African solution to an African predicament.*<sup>125</sup>

For further analysis of gender within PWP's see Amelita King Dejardin, *Public Works Programmes, a Strategy for Poverty Alleviation: The Gender Dimension* International Labour Office, Development and Technical Cooperation Department, 1996).

<sup>125</sup> DPW, *EPWP Five Years Report 2004-2009*

Elsewhere the EPWP programme goals have been summarized in this way:

*-Draw significant numbers of the unemployed into productive work to enable them to earn an income.*

*-Provide unemployed people with education and skills.*

*-Make an effort to assist beneficiaries of the EPWP to either set up their own business/ service or become employed once they exit the programme.*

*-Utilize public sector budgets to alleviate unemployment.*

*-A further objective is to create social and economic infrastructure and provide social services as a means of meeting basic needs. This is a critical objective from the perspective of evaluating the programme's impact.<sup>126</sup>*

Over time the articulation of the programme goals would be refined and streamlined. In the latest edition of the infrastructure guidelines<sup>127</sup> they are summarized as follows:

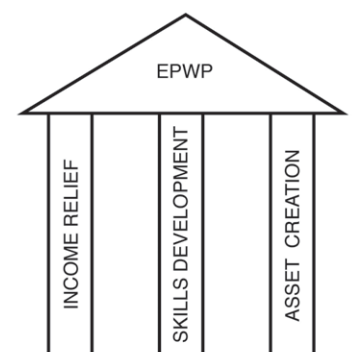
*-providing employment opportunities and distribution of income through injecting some project funds into the local economy in the form of wages to local poor and unemployed people*

*-providing training or skills development to locally employed workers;*

*-building cost-effective and quality assets.*

*-development of labour-intensive capacity in the construction industry.*

For the purposes of this study the three central goals of the EPWP within individual projects are summarized as income relief, skills development, and asset creation as shown in Figure 4.3.



**Figure 4.3** Diagramme of Key Programme Goals

<sup>126</sup> DPW, *Framework for Monitoring and Evaluation of the Expanded Public Works Programme*, 2005). 9

<sup>127</sup> DPW, *Guidelines for the Implementation of Labour-Intensive Infrastructure Projects Under the Expanded Public Works Programme*

### Institutional Arrangement

The EPWP programme is centrally administered through the Department of Public Works, one of thirty-five ministerial departments of the Presidency of South Africa. The Minister of Public Works is responsible for the departmental leadership of the programme.

*Within the Department of Public Works (DPW), the EPWP Branch is responsible for: overall coordinating and implementing support, developing funding frameworks, providing technical support to participating public bodies and monitoring & evaluation.*<sup>128</sup>

The EPWP is divided into 4 sectors, Infrastructure, Environment and Culture, Social, and Non-State. However, among these four branches of the EPWP, Infrastructure is the only one coordinated from within the Department of Public Works. See table below:

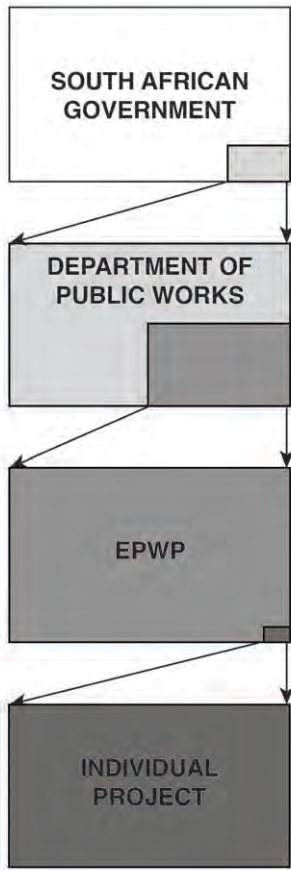
EPWP Sector	Sector Coordinator
Infrastructure	Department of Public Works
Environment and Culture	Department of Environmental Affairs
Social Sector	Department of Social Development
Non-State	Various NGO's

**Figure 4.5** Table of EPWP Sector Coordination

The role of the sector coordinators is to:

*provide leadership & authority, coordination & direction, advocacy, risk management, and capacity building for the respective sectors.*<sup>129</sup>

The Infrastructure Sector is the largest sector both in funding and job-opportunities created.<sup>130</sup> Each Sector of the EPWP implements the overall goals through localised projects, which range from



**Figure 4.4** Diagramme of levels of EPWP Structure

<sup>128</sup> DPW, "EPWP: Institutional Arrangement," Department of Public Works, [http://www.epwp.gov.za/about\\_institutional\\_arrangement.html](http://www.epwp.gov.za/about_institutional_arrangement.html) (accessed 3/24/2016, 2016).

<sup>129</sup> Ibid.

<sup>130</sup> For a sample of the current scale of each department, see excerpt from 1<sup>st</sup> Quarterly Report 2014/2015 in Appendix D.2

cleaning debris from wetlands to childcare activities to building housing, all targeting formerly unemployed beneficiaries.

Project level implementation occurs through national government agencies (ex. Department of Roads, South African National Parks) and provincial or municipal level agencies (ex. City of Cape Town Dept. of Human Settlements). In addition, NGO's can coordinate EPWP programmes. Detailed description of these arrangements of project delivery is beyond the scope of this thesis. Additionally, in 2013 the EPWP was renewed for a third 5-year Phase projected to last from the 2014/2015 to the 2018/2019 financial years. Adjustments have been made to the methods of implementation at each new phase.<sup>131</sup>

### EPWP Funding Allocation

EPWP is funded through the Department of Public Works, which receives funding from the National Treasury. In 2015 the South African National Treasury budget was approximately R 680 trillion of which R 6.4 billion was allocated towards the Department of Public

SCHEDULE		
Vote		
		R'000
<b>11</b>	<b>Public Works</b> Purpose: <i>Provide policy formulation for, as well as coordination, regulation and oversight of, the public works sector in relation to the accommodation, housing, land and infrastructure needs of national departments. Enhance intergovernmental relations by coordinating concurrent public works functions. Lead and direct the implementation of the national expanded public works programme. Promote growth, job creation and transformation in the construction and property industries.</i>	<b>6 411 087</b>
	<b>3 Expanded Public Works Programme</b> <i>Coordinate the implementation of the expanded public works programme, which aims to create work opportunities; and provide training for unskilled, marginalised and unemployed people in South Africa.</i> <i>Of which</i> <i>Conditional allocation to local government</i> * – Expanded Public Works Programme Integrated Grant for Municipalities <i>Conditional allocations to provinces</i> * – Expanded Public Works Programme Integrated Grant for Provinces * – Social Sector Expanded Public Works Programme Incentive Grant for Provinces <i>Households</i> – Employee Social Benefits: Leave gratuities <i>Non-profit institutions</i> – Various Institutions: Non-State Sector Programme – Work opportunities – Non-wage costs	<b>1 992 234</b>
	<b>TOTAL</b>	<b>679 497 512</b>

**Figure 4.6** Composite Table of 2015 Budget

<sup>131</sup> For more detailed description of EPWP Phases see Appendix D.3.

Works. Of this amount, R 1.9 billion rand was allocated to EPWP. This accounts for about .29% of the overall National Budget. See Figure 4.6.

### Monitoring and Evaluation

Treasury funding of the EPWP is contingent on regular reporting. This reporting is passed from project level implementing personnel to governmental agencies responsible for reporting. Monitoring and evaluation of the EPWP is based on ongoing data collection and a five-year comprehensive evaluation of the programme. Quarterly reports of the overall EPWP figures are available publicly, with details at the project level reported on a monthly basis. These project-level detailed monthly reports are not made publicly

<b>Source System</b>	MIS INF_MUN
<b>Confirm</b>	Yes
<b>sector</b>	Infrastructure
<b>Project ID</b>	1215072-EPWP2M
<b>Project Nr</b>	hs_dd_15_77
<b>Project Name</b>	Ocean View Mountain View Stone Masonry
<b>Programme name</b>	Housing Delivery
<b>Funder</b>	City of Cape Town Metropolitan
<b>Local Municipality Code</b>	CPT
<b>Local Municipality</b>	City of Cape Town (CPT)
<b>District/Metro Code</b>	CPT
<b>District / Metro</b>	City of Cape Town Metropolitan (CPT)
<b>Prov</b>	WC
<b>Project Description</b>	Housing Development Ocean View
<b>Annual Budget</b>	3,057,974.00
<b>Annual Expenditure</b>	1,407,141.00
<b>Person-days Work</b>	12,340.00
<b>Work Opportunities</b>	269
<b>Av wage</b>	100
<b>Youth</b>	149
<b>Women</b>	36
<b>Ppl wth Dis</b>	0
<b>Maximum Wage</b>	166
<b>AvgOfWAGE (Total Budget )</b>	111.95
<b>Main Programme</b>	Housing Delivery
<b>Person Days of Training</b>	0
<b>Sphere</b>	Municipal
<b>M&amp;E Code</b>	CPT

**Figure 4.7** Sample EPWP Reporting Criteria

available.

Figure 4.7 indicates the information that must be collected for any EPWP project. The sum of all of these projects is what leads to the overall programme totals often cited by politicians.



### EPWP in Building Construction Work

There is ambiguity concerning the priority of building construction work to the EPWP goals of labour-intensive construction. In its simplest form, labour-intensive construction seeks to match quality of the construction output while substituting human labour for the work of machines wherever possible.<sup>132</sup>

The Guidelines to the Implementation of Labour-Intensive Infrastructure Projects Under the EPWP 2015 claims that building construction is inherently labour-intensive and therefore not a relevant area for EPWP. It includes the table seen in Figure 4.9 that ranks buildings as comparatively low in terms of labour-intensity.

Category	Sub-Category	Indicators	Recommended Minimum Range of LI
Buildings	Construction	No., m <sup>2</sup>	10-30%
	Maintenance	No., m <sup>2</sup>	20-70%
	Landscaping	m <sup>2</sup>	40-70%
Roads and Stormwater – High Volume	Construction/ Upgrading/ Rehabilitation	Km., lane-km	10-30%
	Maintenance – Routine	Km., lane-km, m <sup>2</sup>	40-90%
	Maintenance – Periodic	Km., lane-km, m <sup>2</sup>	15-40%
	Fencing	Km., m	20-50%
Roads and Stormwater – Low Volume	Construction/ Upgrading/ Rehabilitation (Gravel/ Sealed)	Km., lane-km	15-35%
	Maintenance – Routine	Km., lane-km, m <sup>2</sup>	70-90%
	Maintenance – Periodic	Km., lane-km, m <sup>2</sup>	20-50%
	Non-Motorized Transport/ Sidewalks (Exclusive of Rehabilitation of Structures)	Km., m <sup>2</sup>	15-40%

**Figure 4.8** EPWP Labour-Intensity Table

However, in the section labeled “Housing, schools and clinics” it suggests areas to make building construction more relevant:

<sup>132</sup> DPW, *Guidelines for the Implementation of Labour-Intensive Infrastructure Projects Under the Expanded Public Works Programme*



*Housing is seen as labour-intensive, but the number of local people that could be employed may be enhanced by the following:*

- 1. Manufacture of masonry elements on site.*
- 2. Excavation of all foundation trenches by hand.*
- 3. Manufacture of roof trusses on site*
- 4. Alternative building technologies referred by Agrément SA.<sup>133</sup>*

This rather benign list suggesting labour intensity enhancement opens huge creative opportunities for the architectural profession to design for increased labour-intensity, as will be described in the chapters ahead.<sup>134</sup> To understand the possible implication of this table, it is useful to explore the prevalence of the EPWP in building related projects.

## **Part II: EPWP IN PRACTICE**

### **EPWP DesignWork Architecture projects**

A sample database from the 4<sup>th</sup> Quarter 2014-2015 Reporting Spreadsheet was requested from the EPWP Central Office in Pretoria and made available for this research. This provided a window into understanding the current scale and scope of the EPWP programme. Spanning all provinces and including a total of over 15,000 ongoing projects, filtering the data to show only “Building” projects revealed over 70 projects nationwide including the construction of schools, clinics and community buildings. Under the category of “Housing” over 230 housing construction projects are included, the vast majority of which appear to be RDP-type housing utilizing some element of EPWP labour.

Selectively filtering these projects reveals that in the Western Cape alone there are currently over 40 Department of Human Settlements housing related projects utilizing EPWP. While this

---

<sup>133</sup> Ibid.

includes a small percentage of rental housing and other forms of subsidized “social housing”, the majority of development efforts are RDP-type new construction single-family housing developments.<sup>135</sup> Ocean View Housing, studied in Chapter 7 will focus on this type of housing development.

### **Integrated Development Plan**

According to the Division of Revenue Act all levels of government (agency level, provincial, and municipal) must implement the EPWP in infrastructure delivery.<sup>136</sup> In order to achieve these goals, individual governmental departments are required to outline EPWP strategies within their primary planning framework, the Integrated Development Plan.

The Integrated Development Plan (IDP) is the protocol for departmental and municipal planning within the South African government. In accordance with the Systems Act of 1997 all municipalities must complete a 5-year IDP with annual progress assessments.<sup>137</sup>

*Integrated development planning is a process through which municipalities prepare a strategic development plan which extends over a five-year period. The Integrated Development Plan (IDP) is a product of the IDP process. The IDP is the principal strategic planning instrument which guides and informs all planning, budgeting, management and decision-making processes in a municipality.*<sup>138</sup>

From the IDP funds are allocated to development and infrastructure. From the perspective of the EPWP, this is a critical document that signals which projects will seek to use labour-

---

<sup>135</sup> Data from 2014/2015 4<sup>th</sup> Quarter EPWP Reporting. See Appendix D.3 for excerpts

<sup>136</sup> Phillips, *The Expanded Public Works Programme (EPWP): Overcoming Underdevelopment in South Africa's Second Economy*.

<sup>137</sup> IDP, *Integrated Development Planning: A Practical Guide to Municipalities* <br />Local Government,[2010]).

<sup>138</sup> Ibid.

intensive construction methods and enable opportunities through the EPWP.

### **Project Level Funding Structure**

The EPWP is structured so that it primarily relies on existing departmental line-item budgets. More than a central funding mechanism, the EPWP methodologies are structured to promote and assist in advancing the labour-intensive delivery of public works.<sup>139</sup> Central to this methodology is a focus on providing work opportunities for the most vulnerable through labour-intensive construction projects.

The EPWP is designed to infiltrate the workings of all public bodies, orienting them towards Labour-Intensive Construction (LIC) processes that enable increased job creation and job training opportunities within public projects. In this regard, the critical path is for government agencies to integrate LIC projects that involve the EPWP into their 5-year IDP.

The Incentive Grant is the primary funding resource the EPWP offers individual projects.<sup>140</sup> It is designed to offset any additional costs incurred to implement LIC, including costs related to tools, management and training.<sup>141</sup>

### **Project Goals and Agency Leadership**

Projects identified to utilize the EPWP emerge from Integrated Development Plans. Leaders within Public Agencies are the hands and feet that enable the methodology of the EPWP to be implemented. They set the priorities in the design briefs and direct

---

<sup>139</sup> DPW, *Guidelines for the Implementation of Labour-Intensive Infrastructure Projects Under the Expanded Public Works Programme*

<sup>140</sup> DPW, "EPWP Grant Manual 2014/2015. Version 6." Department of Public Works, [http://www.epwp.gov.za/documents/Infrastructure/Infrastructure\\_incentive\\_manual/EPWP\\_Integrated\\_Grant\\_Manual2014\\_15Version\\_6April2014.pdf](http://www.epwp.gov.za/documents/Infrastructure/Infrastructure_incentive_manual/EPWP_Integrated_Grant_Manual2014_15Version_6April2014.pdf) (accessed 3/24/2016, 2016).

<sup>141</sup> See Appendix D.4 for and overview of the Incentive Grant.

architects who initiate design ideas and make drawings to instruct building contractors.

Delivery of labour-intensive targets are typically written into the builders contract, who will then be responsible to achieve the EPWP goals and manage the EPWP beneficiaries. Two documents produced by the EPWP are central to understanding the programme's implementation. The first is the Guidelines for the Implementation of Labour-Intensive Infrastructure Projects Under the EPWP. This document outlines policies and expectations for professionals implementing the EPWP.

The second key document is the Code of Good Practice for Employment and Conditions of Work for EPWP. This explains the essential workers rights and employer practices, including outlining policies for employee recruitment and enrollment.

### **Recruitment and Enrollment**

Recruitment of EPWP beneficiaries is to be based on four criteria; willingness to take up the offered work, categorised as poor, underemployed or unemployed, and live close to the project area.<sup>142</sup> Once recruited, each EPWP worker is given an individual contract that outlines the intended duration of their employment, rules of conduct, and terms of employment. The central document for EPWP employers is the Basic Conditions of Employment Act 1997, commonly known as the EPWP Code of Good Practice.<sup>143</sup> This outlines requirements for conditions of labour, as well as the duties and responsibilities of both employer and employees. Employees must be older than 16 years old, with a preference given to women, youth, and people with disabilities. Work is restricted to 40 hours per week.

---

<sup>142</sup> DPW, *Guidelines for the Implementation of Labour-Intensive Infrastructure Projects Under the Expanded Public Works Programme*

<sup>143</sup> See sample EPWP Contract in Appendix D.5.

### **Wages**

Wages within the EPWP are intended to be set at levels low enough to not compete with available market driven employment alternatives. The current minimum acceptable wage level for EPWP employment is R79/day<sup>144</sup> while the reported average is R97/day.<sup>145</sup>

### **Training**

Along with infrastructure development, training is a central aim of the EPWP programme. In order to facilitate training, many partners are involved. The nature of the training within the EPWP is fundamentally contractual. This is in contrast to developing internal capacity within the EPWP to implement training. A central EPWP Skills Training Centre has been proposed but to date has not been realized.<sup>146</sup>

Public agencies must coordinate training through privately tendered training contractors, with central governing bodies regulating training standards. In South Africa the National Qualifications Framework (NQF) is a component of South Africa Qualifications Authority (SAQA) and is designed for the purpose of ensuring quality of national qualifications. Accordingly, a rating scale from 1-10 accredits various trainings, ranging from general occupational certificates to doctoral degrees.<sup>147</sup> Figure 4.10 is taken from the EPWP Consolidated Programme Overview and Logical Framework.<sup>148</sup>

---

<sup>144</sup> DPW, "Public Works on Wage Boost for EPWP Participants. South African Government," <http://www.gov.za/speeches/public-works-wage-boost-epwp-participants-1-nov-2015-0000> (accessed 3/24/2016, 2016).

<sup>145</sup> Based on the 2014/2015 The 4<sup>th</sup> quarter spreadsheet. According to international exchange rates at time of publication, R97/day is equal to \$7.68 US/day

<sup>146</sup> Fitchett, *Interview by Author*.

<sup>147</sup> See Appendix D.6 for NQF Levels Diagramme

<sup>148</sup> EPWP, *Consolidated Programme Overview and Logical Framework*, Version 6 ed., (2004).

According to the *Code of Good Practice* it is required that all beneficiaries are given 2 days of training per month.<sup>149</sup> This primarily comes in two forms, technical and soft skills training, each registered with SAQA:

*Technical training programmes are hard skills which may amongst others include bricklaying, laying of gabions, and toy making.*

*Soft skills training programmes are course which are non-technical in nature e.g. financial management, new venture creation.<sup>150</sup>*

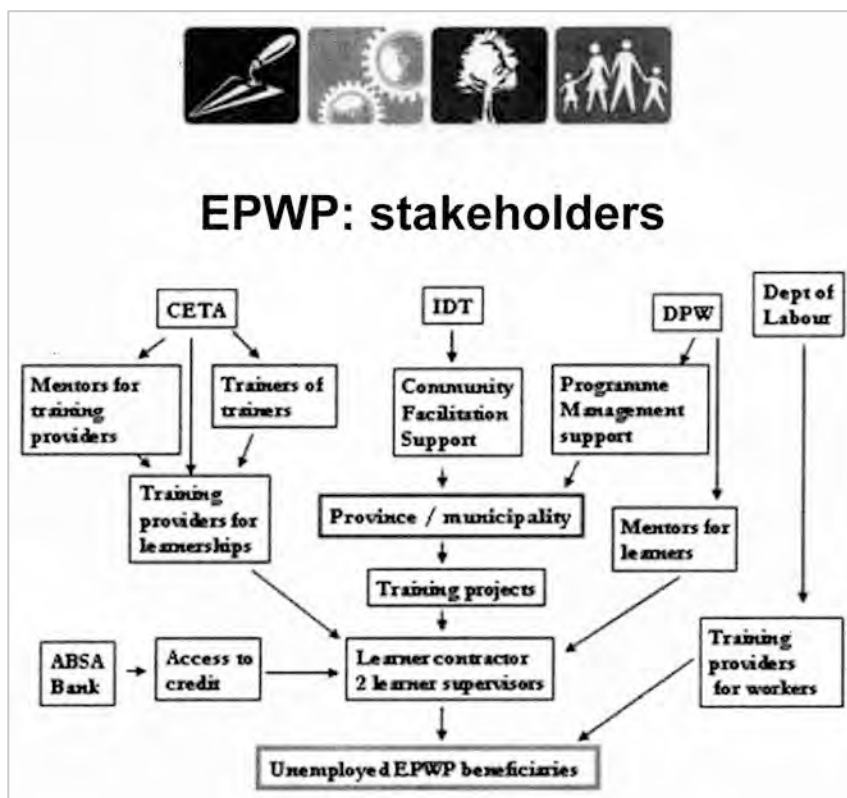


Figure 4.9 EPWP Stakeholder Diagramme

The priority is towards technical training rather than soft-skills training:

*The following principles must be adhered to, when developing sector specific training guidelines:*

- Training must target project specific outcomes.
- Quality training must be based on accredited

<sup>149</sup> DPW, *Guidelines for the Implementation of Labour-Intensive Infrastructure Projects Under the Expanded Public Works Programme*

<sup>150</sup> DPW, "Department of Public Works: EPWP Phase II Training Framework," (March 2012, 2012).

*training that lead to a qualification.*

*-Training must prioritize technical skills and minimal soft skills.*

*-Training must prioritize longer training interventions.<sup>151</sup>*

SAQA is the agency responsible for regulating all NQF-level skills trainings and issuing qualification certificates for artisans. The Construction Industry Development Board (CIDB) manages registration of qualified contractors who have the aptitude and experience to tender for a range of projects. Uniquely for housing construction contractors are registered with the National Home Builders Registration Council (NHBRC). For example, if a project is to have a bricklaying training for unskilled workers, the public agency needs to work in conjunction with the CETA and SAQA to locate a certified trainer to do the training. This trainer then will conduct trainings with EPWP beneficiaries for the project on or off-site. See Figure 4.10 .

Figure 1: Institutional Arrangement for EPWP training

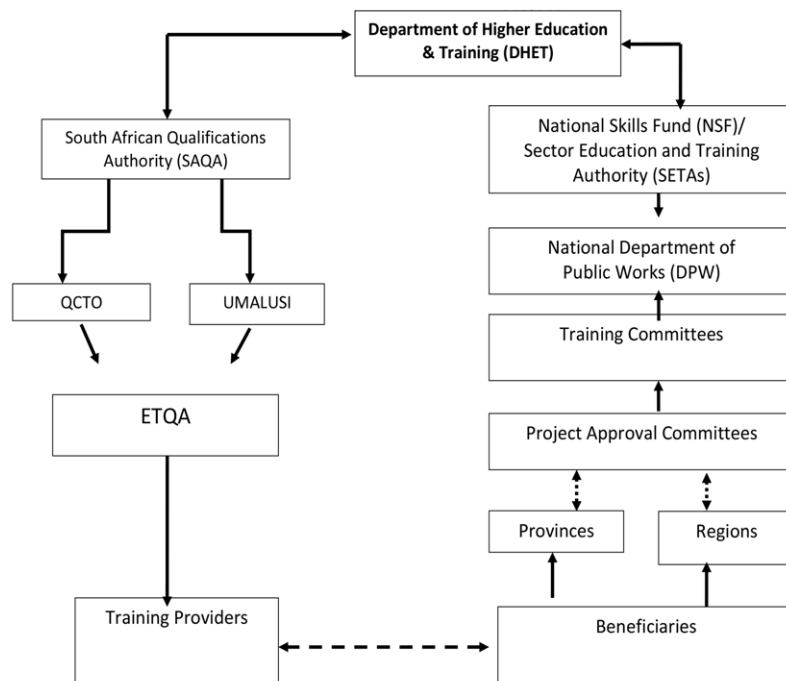


Figure 4.10 CETA Training Diagramme

<sup>151</sup> Ibid.

## Training Models

There are three primary pathways to training as outlined by the EPWP.<sup>152</sup> The first is a “Prior Training” model whereby beneficiaries are trained in advance of participation in an infrastructure project in order to create an available group of qualified workers. The second type of training model is “On-Site Training”. Here beneficiaries are able to learn-by-doing with on-site tasks. The final model is “Training for Exits” in which at the completion of the EPWP project beneficiaries are transitioned into one of several pathways for further skill development:

*Adult-based Education and Training (ABET) ,*

*Vocational learning programmes (e.g. National Certificate Vocational)*

*Occupational learning programmes through learnerships.*

*Artisan development programme through Apprenticeship.*

*Accredited Skills programme.<sup>153</sup>*

## Small Medium and Micro Enterprises<sup>154</sup>

The development of Small Medium and Micro Enterprises (SMME's) is a key issue related to facilitating the EPWP. According to a report by TIPS on the nature of SMME's in South Africa:

---

<sup>152</sup> Ibid.

<sup>153</sup> Ibid.

<sup>154</sup> The connections between EPWP and the goal of SMME development are difficult to clearly link. There is sufficient evidence that SMME development is a priority of the EPWP and certainly it's parent agency the Department of Public Works. This is seen through the establishment of the Enterprise Development (ED) Unit within EPWP, one such indication of SMME's as a shared priority of the Department of Public works. ([http://www.epwp.gov.za/cross\\_enterprise.html](http://www.epwp.gov.za/cross_enterprise.html))

*“The ED Unit is a business unit within the EPWP whose responsibility is to facilitate the development of new SMMEs and to support existing ones in order to multiply the effects of EPWP thereby increasing the development impact within communities.”*

Important for this thesis was evidence that arose through interviews that the administration of the EPWP has important links to the goals of SMME development, and that at times SMME development can open doors to further EPWP objectives on building site, as seen in the case of the Mapungubwe Interpretive Centre.

For these reasons the author has chosen to prioritize the narrative of SMME development as an important aspect of this thesis and has contextualized this decision within the footnotes of this thesis.



*SMMEs therefore emerge not only from a productivity perspective, but also with an interest in income distribution, as the most promising section of South Africa's economy.*<sup>155</sup>

This is a specifically relevant in relation to DesignWork projects, given the finite duration of building construction projects and the nature of most work on job sites being sequentially divided between multiple forms of artisans. In order to become SMME's, individuals must register with the Construction Industry Development Board (CIDB) contractors. Registration enables individuals to tender for construction work up to a certain cost level. For example, at the time of publication CIDB Level 2 Contractors can tender for up to R650,000 contracts. With experience contractors can upgrade their rating and advance to tender for more costly contracts. Particularly in areas of high unemployment SMME's can become key sources of employment for additional workers. Figure 4.11, also taken from the EPWP Logical Framework illustrates a series of best-case outcome of the programme and is a helpful reference when considering the actual outcomes of two real-world projects.

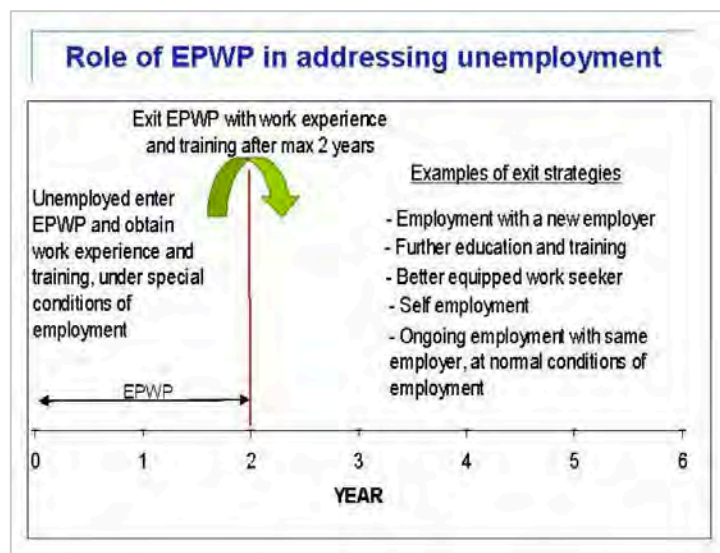


Figure 4.11 EPWP Exit Diagram

### Required EPWP Training for Professionals

There are two primary training modules for professionals to become experienced in the theory of labour-intensive construction.

<sup>155</sup> Al Berry et al., "The Economics of SMMEs in South Africa," *Trade and Industrial Policy Strategies*, Johannesburg, South Africa (2002).

They are rated at NQF Level 5 and Level 7 training and are offered at various institutions coordinated by SAQA.<sup>156</sup> This training is primarily targeted at building contractors because qualified staff are required for competitive tendering of construction projects involving the EPWP. See Figure 4.12.

<b>C.2 Consultants</b>			
The person responsible for the design and documentation of the labour-intensive works, must have completed the NQF level 7 unit standard "Develop and Promote Labour-Intensive Construction Strategies" or equivalent QCTO qualification. (See Table C.2).			
The Employer's Representative must have completed the NQF level 5 unit standard "Manage Labour-Intensive Construction Projects" or equivalent QCTO qualification. (See Table C.2).			
<b>Table C.2: Skills programme for consultants</b>			
Personnel	NQF	Unit standard Title	Skills Programme Description
Employer's Representative / Site Supervisor	5	Manage Labour-Intensive Construction Projects or equivalent QCTO qualification	Supervisor Skills Programme against this single unit standard or part qualification
Designer	7	Develop and Promote Labour-Intensive Construction Strategies or equivalent QCTO qualification	Skills Programme against this single unit standard or part qualification

**Figure 4.12** NQF Trainings Available

### Architects and the EPWP

Much of the EPWP has been focused on labour-intensive construction in Civil Engineering projects such as roads. However, Figure 4.12 stipulates that designers must have an NQF Level 7 qualification "Develop and Promote Labour-Intensive Construction Strategies". In most cases the designers are Civil Engineers. Perhaps for this reason architects are scarcely mentioned within EPWP documents. Nevertheless, building projects are utilizing the EPWP, and architects have a substantial role in developing designs to maximise productive work outcomes for EPWP beneficiaries. In lieu of this specialized education concerning labour-intensive construction and the EPWP, architects are asked to design appropriate buildings for this uncertain context. In the following chapters this thesis will explore how DesignWork was implemented in two selectively chosen projects and examine the results. In neither case did the design professionals involved have any prior formal training in designing for the EPWP.

<sup>156</sup> DPW, *Guidelines for the Implementation of Labour-Intensive Infrastructure Projects Under the Expanded Public Works Programme*

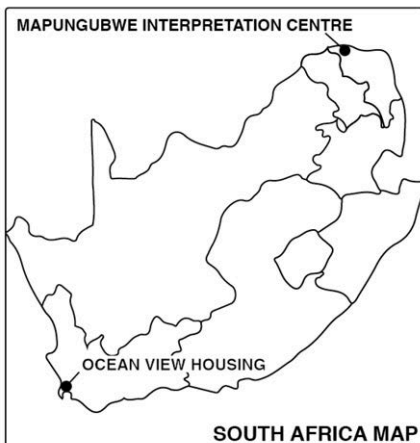
## CHAPTER 5: Project Selection

### Selecting Embedded Units of the Case Study

In order to investigate the nature of DesignWork at a project level, two architectural projects were chosen from a larger screened pool.<sup>157</sup> These projects were identified through the extensive reading of the literature review, site visits and discussions with architectural practitioners and academics in Cape Town.

### Rationale For Project Selection

The key criteria for selection of the two projects of this study were evidence of architectural responses to a governmental request for labour-intensive construction and the presence of the EPWP.



**Figure 5.1** Map of Select Projects

Careful selection of case studies is a critical part of the Case Study Methodology. As shown by Flyvbjerg in Figure 5.2 there are various approaches to the selection of cases.<sup>158</sup> Case Study research of this form cannot proceed without access to key project participants. Once the Mapungubwe Interpretive Centre was identified as a prime project to investigate, contact was made with key project leaders. Through these initial interviews an understanding of the EPWP emerged that lead to the adoption of the Ocean View Housing Project to offer a counterpoint example to the Mapungubwe Interpretive Centre. Both projects have been internationally publicized for their design and construction process and are seen as exemplars that warrant further study.<sup>159</sup> In this respect this study is based on extreme/deviant cases.

---

<sup>157</sup> See Appendix E.1 for list of screened projects

<sup>158</sup> Bent Flyvbjerg, "Five Misunderstandings about Case-Study Research," *Qualitative Inquiry* 12, no. 2 (2006), 219-245.

<sup>159</sup> MIC has been very well publicized in the international media and has garnered several awards, including most notable the World Building of the Year Award (2009) given from the World Architecture Festival. Additionally, it has won the Alsop Engineering Award (2008), the Brick Award (2012), and shortlisted for the Aga Khan Award for Architecture (2013).

Ocean View Housing, while still under construction, was selected as a feature site for the World Design Capital 2014 campaign in Cape Town. In addition to this international recognition the project has been featured in many media articles throughout South Africa.

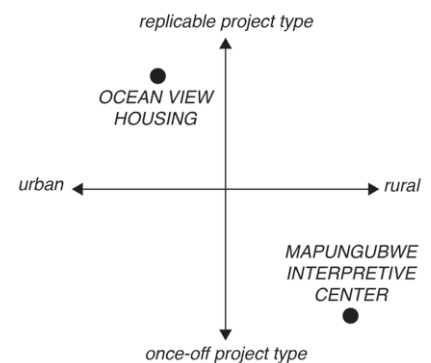
Since the use of the EPWP is widespread and it is designed to be a flexible methodology, the selection of two vastly different projects to explore the phenomenon of DesignWork in this context was intentional. See Figure 5.3.

Type of Selection	Purpose
A. Random selection	To avoid systematic biases in the sample. The sample's size is decisive for generalization.
1. Random sample	To achieve a representative sample that allows for generalization for the entire population.
2. Stratified sample	To generalize for specially selected subgroups within the population.
B. Information-oriented selection	To maximize the utility of information from small samples and single cases. Cases are selected on the basis of expectations about their information content.
1. Extreme/deviant cases	To obtain information on unusual cases, which can be especially problematic or especially good in a more closely defined sense.
2. Maximum variation cases	To obtain information about the significance of various circumstances for case process and outcome (e.g., three to four cases that are very different on one dimension: size, form of organization, location, budget).
3. Critical cases	To achieve information that permits logical deductions of the type, "If this is (not) valid for this case, then it applies to all (no) cases."
4. Paradigmatic cases	To develop a metaphor or establish a school for the domain that the case concerns.

**Figure 5.2** Flyvbjerg Case Selection Table

The Mapungubwe Interpretive Centre represents a rural and once-off institutional tourism building developed by a national government agency, the South African National Parks (SANParks) within the Department of Environmental Affairs. This project was administered through the Environmental Sector of the EPWP.

The Ocean View Housing Project is a municipal-level housing scheme utilizing the People's Housing Process and coordinated by the City of Cape Town Department of Human Settlements on a site adjacent to an urban informal settlement. This project is administered through the Infrastructure Sector of the EPWP. Ocean View represented the possibility of a more replicable model. RDP housing is ubiquitous throughout South Africa, and since 1994 over 2.8 million houses of this type have been built, with scores of



**Figure 5.3** Quadrant Diagramme of Two Projects

ongoing projects throughout the country.<sup>160</sup> Integrating EPWP training strategies in addressing this development priority is recognized in the National Housing Code, which dedicates a full section of the code specifically to the role of the EPWP in housing development.<sup>161</sup> Therefore the Ocean View Housing Project presented a unique opportunity to look closely at housing as a relevant context for DesignWork.

In the proceeding chapters this thesis will construct a detailed narrative of these two projects. This will assist in understanding the implementation of the EPWP “at the coal face” and provide context for the collection of data and analysis in Chapter 8.

---

<sup>160</sup> RSA, *20 Year Review: South Africa 1994-2014*, 68

<sup>161</sup> DHS, "National Housing Code. Department of Human Settlement. South Africa," (2009).





**Figure 6.1** Mapungubwe Interpretive Centre

## **CHAPTER 6: Mapungubwe Interpretive Centre**

### **6.1 Project Background**

In 2009 an international jury of architects <sup>162</sup> selected the Mapungubwe Interpretive Centre as the World Building of the Year at the World Architecture Festival. This recognition of design excellence put the project, located in a remote area of the Limpopo province, on the global architectural stage. Subsequent media accounts strongly focused on two compelling narratives of the

<sup>162</sup> Marcus Fairs, "Mapungubwe Interpretation Centre by Peter Rich Architects." *Dezeen*, 2009, .

"Mapungubwe Interpretation Centre was selected from a total of 15 finalists, by a 'super-jury' chaired by Raphael Viñoly of Rafael Viñoly Architects PC, which included Kengo Kuma, Farshid Moussavi, Suha Ozkan and Matthias Sauerbruch. The finalists were whittled down from a shortlist of over 270 projects."



**Figure 6.2** Project Location Map

project, the highly engineered and innovative vaults and the development of jobs for locally unemployed people in the building process. While details of the vault construction and engineering were widely published, little detail was provided to contextualize the structures that enabled the job-creation within the project.

## 6.2 Mapungubwe History

Designated a UNESCO Cultural Landscape in 2003, Mapungubwe National Park (MNP) is a site of cultural significance for South Africa and the region. Located at the confluence of the Shashe and Limpopo Rivers, it is believed to be the seat of a once great kingdom that for centuries was lost. Archaeologists trace the fall of the Mapungubwe Kingdom to around 1300 A.D.<sup>163</sup> In the early 1930's archaeologists from the University of Pretoria found extensive burial sites on Mapungubwe Hill, including an abundance of gold jewelry and objects. Among these the Golden Rhino became the centrepiece of this vast archaeological discovery.



**Figure 6.3** Map of Mapungubwe National Park and Limpopo/Shashe Transfrontier Conservation Area.

<sup>163</sup> UNESCO, "Citation Description of Mapungubwe Cultural Landscape," <http://whc.unesco.org/en/list/1099/> (accessed March 5, 2016, 2016).

See Appendix F.1 for the full UNESCO Citation Description



### 6.3 SANParks

In 2004 the South African National Parks (SANParks) established MNP as a new national park through the acquisition and consolidation of several adjacent farms, land contributed by DeBeers mining company, and the historic Vhembe-Dongola Nature Reserve, into a contiguous land area of 28,000 hectares.<sup>164</sup> This development was envisioned as a major step towards the creation of the Limpopo/Shashe Transfrontier Conservation Area with adjoining lands from both Zimbabwe and Botswana. See Figure 6.3.

### 6.4 Early Development

In 2002 Crafford and Crafford Architects from Pretoria were commissioned to Master Plan seven South African National Parks sites, including the newly established MNP. In addition to the Master Plan, the architects were commissioned to design the first phase of development at MNP including a series of guest accommodation areas and the Welcome Office at the park entry gate.<sup>165</sup> The development of an Interpretive Centre and a Day Visitor's Centre represented the second major development phase at the park. The Interpretive Centre is the focus of this chapter.

### 6.5 SANParks EPWP Precedent

SANParks, as an agency within the Department of Environmental Affairs, identified the Mapungubwe Interpretive Centre (MIC) to be a labour-intensive project and contribute to overall departmental goals for the EPWP. The General Manager of Infrastructure and Special Projects at SANParks, Antionet Van Wyk described their approach to the EPWP:

*We embrace the programme because of the benefits that it can have for getting people employed from communities. We try to make best use of it.*<sup>166</sup>

---

<sup>164</sup> David Fleminger, *Mapungubwe Cultural Landscape* (Pinetown, South Africa: 30° South Publishers, 2008).

28,000 hectares is equivalent to over 69,000 acres or 108 square miles

<sup>165</sup> Abre Crafford, Interview by Author. April 7, 2015.

<sup>166</sup> Antionet Van Wyk, Interview by Author. March 30, 2015.



The MIC was not the first architectural project developed by SANParks utilizing the EPWP and not the first to generate substantial employment through labour-intensive materials production. Three primary examples emerged at other National Parks, including Tankwa Karoo, Aguilhas, and Kgalagadi.

At Tankwa Karoo traditional unbaked clay and straw bricks were manufactured on-site specifically for the project and utilizing EPWP beneficiaries from local communities.

At Aguilhas National Park, workers from nearby Elim, a town known for its thatch roofing artisans, were hired to harvest the natural reed that would be used at the new SANParks accommodations. Architectural designs were orientated to this labour-intensive element that utilized the existing skills of local people (*thatchers*) to train others. This allowed for extensive EPWP work before general construction began:

*Five SMMEs employing 60 people were appointed to harvest thatch in the park for approximately 22 months, achieving 17 387 person days. During this time, 170 000 bundles of thatch were cut and dried.*<sup>167</sup>

In 2006-2007 at the Kgalagadi National Park near the border of Namibia, sandbags were used as a labour-intensive form of construction that utilized the sites abundant sand. Reportedly cracks quickly developed in the plaster finish coat atop the sandbags that have required regular maintenance. This maintenance concern ruled out further development with sandbags.<sup>168</sup>

In these projects SANParks evidenced an ethos of utilizing local materials in conjunction with labour-intensive construction and local job-creation. These projects provided lessons in the risks of poorly



**Figure 6.4** SANParks developments at Tankwa Karoo, (top), Aguilhas (middle) and Kgalagadi (bottom)

<sup>167</sup> SANParks, "Social Investment Report 2012," (2012).

<sup>168</sup> Van Wyk, *Interview by Author*.

performing experimental materials. SANParks drew on this prior experience for the Interpretive Centre.<sup>169</sup>

## 6.6 Funding

For the MIC, SANParks received its EPWP funding through its parent department, the Department of Environmental Affairs (DEA). The DEA receives National Treasury funding and is challenged to orient as much work as possible towards EPWP labour-intensive construction opportunities. The departmental 5-year strategic plan allocates funding for select projects that will contribute towards the department's overall EPWP goals.<sup>170</sup>



Figure 6.5: SANParks Map of all National Parks in South Africa

## 6.7 Pre-Design

Aspiring to create a building of national importance, SANParks developed a competition to design the Interpretive Centre.<sup>171</sup> SANParks issued a Request for Proposal inviting four architects to submit plans.<sup>172</sup> Critical to this invitation was the following excerpt from the design brief:

<sup>169</sup> Ibid.

<sup>170</sup> DEA, *Department of Environmental Affairs. Strategic Plan 2013-2018*. Republic of South Africa, [2013].

<sup>171</sup> Crafford, *Interview by Author*.

Van Wyk, *Interview by Author*.

<sup>172</sup> See Appendix F for competition documents.

*7.2 The design of the building should be such that the construction methods should maximise the use of labour, job creation and skills development.*<sup>173</sup>

This request challenged aspiring architectural teams to think ahead concerning labour benefits within the designs being proposed. This brief clearly stated a critical form of speculation required within DesignWork projects; to design not only the building but to anticipate the conditions of labour and opportunities for skill development that architectural design prefigures.

A complicating variable for SANParks were the numerous cultural land claims regarding the site. In this context, it was important that the design not be reflective of one unique tribal group in the region, but seek to resonate with many different groups.<sup>174</sup> Additionally, given the remote location of MNP these designs would have to be carried out with constrained resources and at great distance from formal labour markets.

## **6.8 Initial Architectural Design**

The design jury, composed of built–environment professionals and SANParks staff, selected the design of Lerotholi/Rich Architects. In their competition entry architect Peter Rich sought to create a building that would “take people to the sacred.”<sup>175</sup> The plan was formed around an equilateral triangle linking a series of vaulted spaces that would host important exhibitions. These vaults were designed in collaboration with engineers John Oeschendorf and Michael Ramage.

Initially, the competition entry was done in partnership with Lineo Lerotholi, who was intended to specialize in the community facilitation with neighboring communities. However, given the contention of land-claims there was not a community engagement

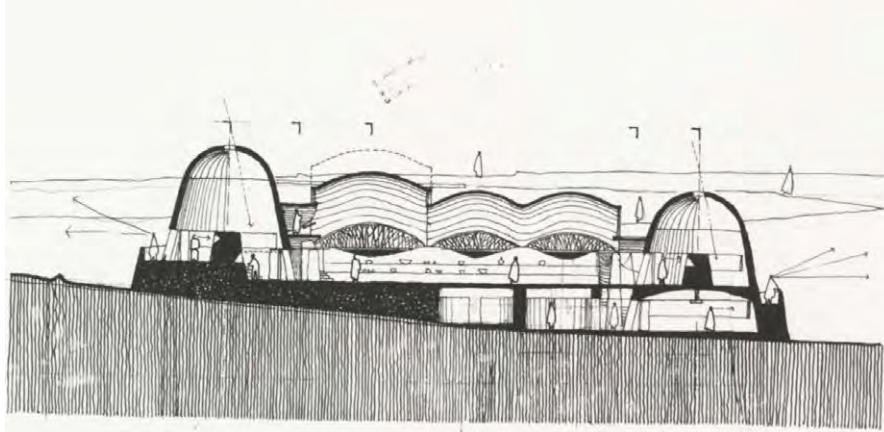
---

<sup>173</sup> SANParks, "Brief to Architects. Mapungubwe Interpretive Centre." Pretoria, 2005).

<sup>174</sup> Peter Rich, Interview by Author. April 6, 2015.

<sup>175</sup> Ibid.

process as initially envisioned and so her involvement was very limited.<sup>176</sup> Rich had done extensive research of the Ndebele culture and had worked previously in several community-based project involving local production of material.<sup>177</sup>



**Figure 6.6** Section of Interpretive Centre © Peter Rich

*Rich was aware of the significance of the triangle in local Venda culture; a common arrangement is three dwellings placed in an equilateral triangle and linked with low walls. He had also seen isolated triangles carved into stones at the nearby archaeological site.<sup>178</sup>*

The plan developed a sequence of spaces leading visitors from the parking area across a bridge thru the entry gate and into a series of low vaulted cave-like spaces housing exhibitions on the bottom floor. The visitor moves up a winding staircase to discover an open and expressive vaulted exhibition space upstairs, bathed in multicoloured light from a large glazed wall. The pinnacle of the building was an ascending ramp in a domed space that lead to the Golden Rhino display<sup>179</sup>. The spatial sequence lead the visitor beyond the building to exterior spaces with views of the vast

---

<sup>176</sup> Ibid.

<sup>177</sup> Ora Joubert, "Excerpts from Introduction to Sophia Gray Lecture. November/December Issue." *Journal of the South African Institute of Architects*, 2011, 5.

See Appendix F.5 for excerpts from ARCHSA feature on Peter Rich's community work.

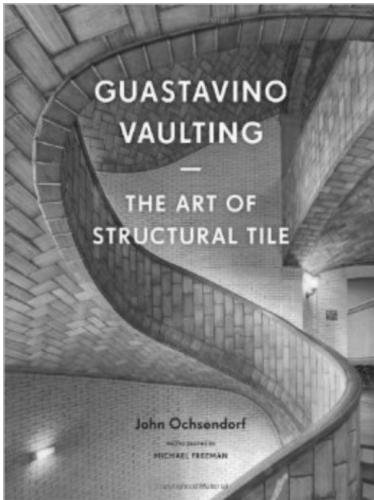
<sup>178</sup> Gabriel Fagan, "Mapungubwe Interpretation Centre by Peter Rich Architects," *Architectural Review*, February, 2010, .

<sup>179</sup> To date a replica of the Golden Rhino remains in the Interpretive Centre while the original is stored at the University of Pretoria.

landscape. See overall plan in Figure 6.9. From interviews with the design team the Pines Calyx emerged as a key precedent for the design approach at the MIC.

### 6.9 Pines Calyx

In 2005 The St. Margaret's Bay Trust commissioned a building in Dover, England to serve as an "ecological conference centre"<sup>180</sup>. Comprised of two large intersecting 11.3-metre shallow spherical domes. This project brought together an expert team to perform key engineering and highly skilled construction work.<sup>181</sup> Issy Benjamin, a South African architect practicing in Europe embarked on the design of the Pines Calyx with Helionics Designs in England. The building vaults were engineered by John Ochsendorf MIT professor<sup>182</sup> and then MIT graduate student Michael Ramage. Ochsendorf was an internationally recognized expert on masonry



**Figure 6.7** *Guastavino Vaulting*  
by John Ochsendorf



**Figure 6.8** Interior Image of Pines Calyx. Photo courtesy of light-earth.com

structures and the vaulting methods of Rafael Guastavino, whose techniques became popular in the USA in the late 1800's for their fireproof qualities, aesthetics, and structural efficiency.

---

<sup>180</sup> Michael H. Ramage, "Catalan Vaulting in Advance Material: New Approaches to Contemporary Compressive Form" MIT), .

<sup>181</sup> Michael H. Ramage, Interview by Author via skype. April 30, 2015.

<sup>182</sup> John Ochsendorf, *Guastavino Vaulting: The Art of Structural Tile* Princeton Architectural Press, 2010).

At the Pines Calyx Spanish masons came to train a multinational team of builders in this specialized technique, including James Bellamy, a New Zealand native and builder who became a central figure in the construction effort of the vaults at MIC. As Ramage described in his MIT thesis:

*Maximo Portal and Fernando Marin, instructors at the Escuela Taller Garcia de la Huerta IV in Zafra, Spain, came to England with one of their students, Ismail Villa, to teach timbrel vaulting techniques to the British masons. The construction of each dome took two weeks with three masons and four labourers.*<sup>183</sup>

Tiles were produced by an architectural ceramics company and involved an admixture to lighten the weight of the natural clay.<sup>184</sup> These tiles cost £2.00 or approximately R 30/tile to produce<sup>185</sup>. This project informed the possibilities for tiles production and vaulted forms at the MIC.

#### **6.10 Architectural Refinement**

Building upon structural ideas developed at the Pines Calyx, for the MIC a new construction process would emerge in collaboration with this team of engineers.<sup>186</sup> Like Guastavino's vaults in the past, at MIC the housing of historic artefacts required fireproof construction, making more traditional building materials such as thatch and gumpoles less applicable.

At MIC the types of vaults would be expanded to include a range of forms and sizes. The outcome would yield a building uniquely suited to its conditions of labour that also resulted in a wholly unexpected form of tectonic expression. The competition's dual request for labour-intensive construction and world class

---

<sup>183</sup> Ramage, *Catalan Vaulting in Advance Material: New Approaches to Contemporary Compressive Form*. Pg 22

<sup>184</sup> Paul Mallion, "Vaulting Over the Building!" *Green Building Magazine*, Winter 2008, 50.

<sup>185</sup> This is based on a 2008 average conversion rate of R15=1£

<sup>186</sup> Rich, *Interview by Author*.



architecture motivated the design team to develop a new variety of vaulted masonry structure for the project.

*SANParks specifically requested a labour-intensive building process, which led to a project driven by simple materials made on site and the possibilities for using them (materials).<sup>187</sup>*

The reality of developing the design and feasibility of construction would prove to be full of surprises and innovations, as Van Wyk described:

*To be honest, we as employer/client took a huge step of faith. We wouldn't normally do that. And if I look back now I would be thinking "Why did I do that?" But we believed in what he (Rich) put there, and when it won the competition, only later on we had to deal with all the issues and we realized that there are no local engineers, there are no people that can do that.<sup>188</sup>*

Given that this method of construction had never been done in South Africa, there was a steep learning curve within the project. The experimental nature of this building type would require a skilled international team of engineers, materials researchers, and specialized management on-site. Initially, this largely foreign-based engineering team drew attention and raised concerns about the cost of the engineering.<sup>189</sup> This lead SANParks to test the engineering cost by tendering the design to an international engineering company with South African offices, which came out 30% higher, assuring the leadership this was a reasonable team after all.<sup>190</sup>

---

<sup>187</sup> Ramage et al., *Design and Construction of the Mapungubwe National Park Interpretive Centre, South Africa*. 21

<sup>188</sup> Van Wyk, *Interview by Author*.

<sup>189</sup> Rich, *Interview by Author*.

<sup>190</sup> Ramage, *Interview by Author Via Skype*.

The design for the vaults evolved through conversations between Rich, Oeschendorf and Ramage. Ramage had worked on the Pines Calyx and would become the most active engineer at MIC.<sup>191</sup> In the course of the project he went from being a Master's student at MIT to being on the faculty at Cambridge University. This vault engineering team was hired by SANParks as consultants through Cambridge University Technical Services, an umbrella organization that allows for Cambridge University faculty to work as consultants and to have professional indemnity insurance.<sup>192</sup> This team would also include with Henry Fagan, a Cape Town-based structural engineer responsible for the non-vaulting structural elements.<sup>193</sup> What emerged within from this collaborative effort was a remarkable level of research and development within a single architectural project.

Working across continents and using a combination of low-tech and high-tech methods<sup>194</sup>, the team collaborated to define both the overall vault geometries and to develop what became the key structural element of the project, the unfired compressed earth tile. This research and development team fused professional and academic roles in non-traditional ways.

### 6.11 Materials Development

The unfired compressed earth tile emerged as the fundamental unit for the structure. This would open up enormous potential for labour-intensive local construction as well as architectural expression within a constrained budget. The team set out an ambitious design that was committed to from the beginning, even when the full extent of the work ahead was not yet understood.

---

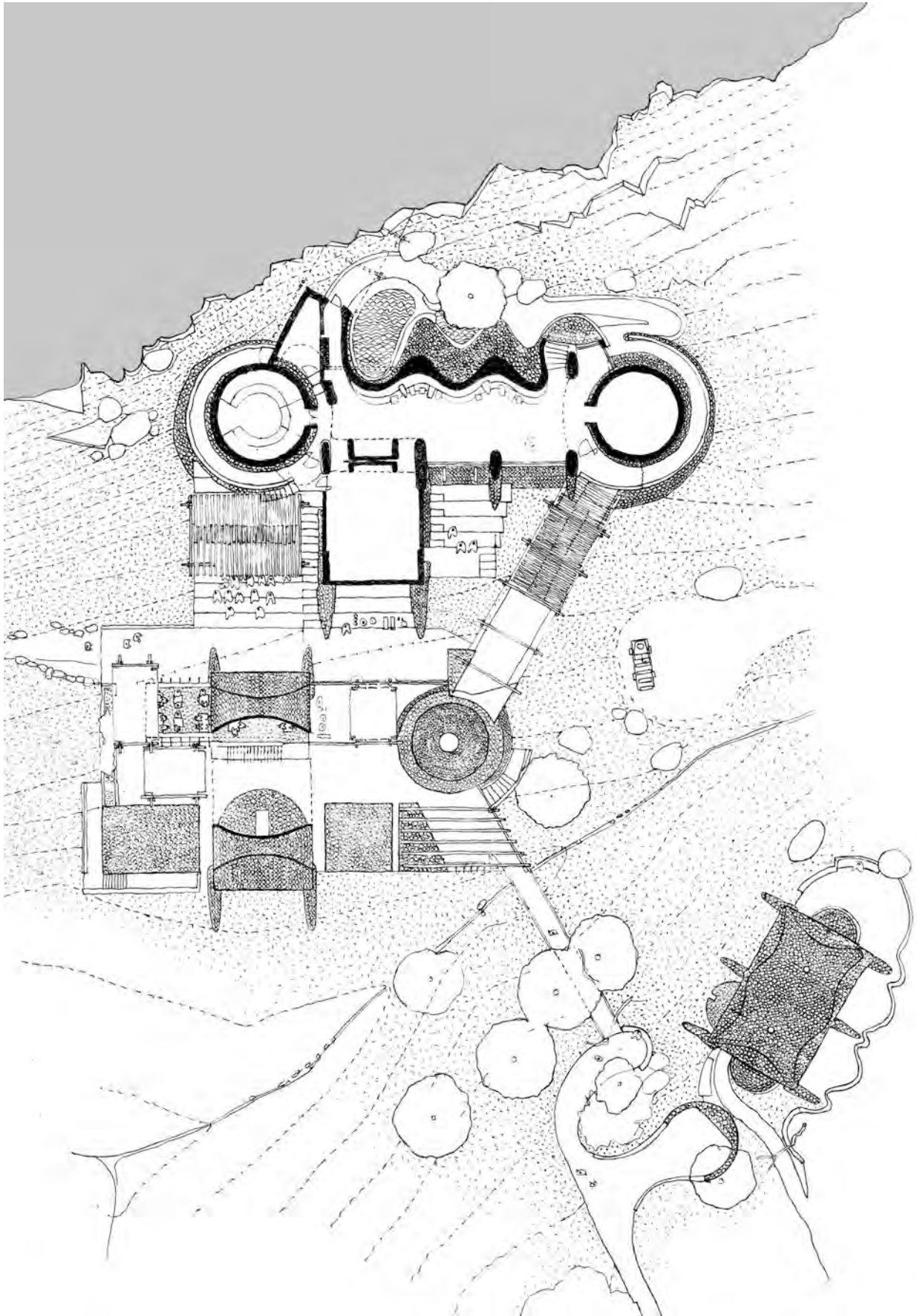
<sup>191</sup> Rich, *Interview by Author.*; Ramage, *Interview by Author Via Skype.*

<sup>192</sup> Ibid.

<sup>193</sup> Henry Fagan, *Interview by Author.* June 18, 2015.

<sup>194</sup> MIT, "Sa+P Plays Key Role in 'World Building of the Year'." *PLAN*, 2010, .  
Philippe Block, an MIT PhD student would also contribute to the project in conducting computer driven Thrust Network Analysis on the vaults Block has since gone on to form a research group at the ETH Zurich which specializes in experimental masonry structures.





**Figure 6.9** Plan of Mapungubwe Interpretive Centre © Peter Rich

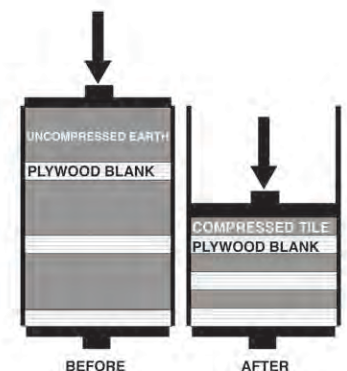
In May 2005, Anne Fitchett, architect, researcher and teacher in the Civil Engineering department at the University of Witwatersrand joined with Matt Hodge, a graduate student from MIT working under Oeschendorf to run extensive tests to develop a serviceable pressed earth tile for the vault construction. Fitchett, a longtime collaborator with Rich was interested in participating in the research of materials and was at the time working to complete her PhD.<sup>195</sup> Despite the availability of quality industrially produced fired tiles within 200km from the site, to maximise EPWP labour opportunities and minimize environmental impact the team chose to devise a method of manufacturing the tiles on site. The team also sought to make the weakest tile utilizing the least cement that could safely support the compression-only loads required from the vaults to minimize the building's environmental impact.<sup>196</sup>

With the goal of finding a low-tech way to manufacture tiles on-site at MNP utilizing only 5% cement,<sup>197</sup> tests began in the laboratory at the University of the Witwatersrand. For this Fitchett and Hodge used a hand operated Cinva-Ram style press made by Hydraform, a South African company specializing in compressed block production. Hydraform, had a history of collaboration with University of Witwatersrand and Rich had designed their headquarters in Boksburg outside of Johannesburg. They donated their research and development efforts towards the project.<sup>198</sup>

A primary challenge was to use this press to manufacture thin tiles rather than traditional bulky blocks weighing up to 11kg each. For this plywood "blanks" were set in the traditional press, making a multi-layered sandwich of plywood and an earth cement mixture for the tiles. See Figure 6.13. The resulting tile was easy to carry and transport, a critical feature given the height of the vaults and the challenging construction technique. Finished tiles were roughly



**Figure 6.10** Tile Shown as dashed line in comparison to typical Hydraform block



**Figure 6.11** Diagramme of Tile Pressing

<sup>195</sup> Fitchett, *Interview by Author*.

<sup>196</sup> Rich, *Interview by Author*.

<sup>197</sup> Ramage et al., *Design and Construction of the Mapungubwe National Park Interpretive Centre, South Africa*.

<sup>198</sup> Fitchett, *Interview by Author*.

dimensioned 20 x 140 x 290mm and composed of 1 part cement, 4 parts soil, 1 part river sand, and a small amount of water.<sup>199</sup>

A unique aspect of EPWP-driven labour is the targeting of workers that may differ from typical construction sites, including a large proportion of women and young adults. Fitchett described the challenge in making the tiles herself as being valuable to ensuring an empathetic approach to the manufacturing process; one that reasonably estimated the effort required to create tiles. In tests it became apparent the challenges in creating the right mix of soil, sand, cement, and water that would yield a sufficiently strong tile. For this mix a minimal amount of water was used. In this process, the research team developed an estimate of production output that could reasonably be expected from site teams. This initial output estimate was 750-800 tiles/day/press for a six person team.<sup>200</sup>



**Figure 6.12** Experimental Vaults on roof of Civil Engineering building

### 6.12 Tender for Construction

As Van Wyk stressed, the involvement of the EPWP could not eliminate the need for a qualified professional building contractor.<sup>201</sup> Given the remoteness of the site, getting a capable lead contractor was essential to the project's success. To avoid complicating the work of the main building contractor, SANParks chose to separate the production of the tiles from the overall building construction contract.<sup>202</sup> USNA Bouers (USNA), a local builder from Louis Trichardt who completed work on Phase 1 at MNP was awarded the contract for the Interpretive Centre. The intention was that they would oversee all of the construction, including responsibility for the completion of the vaults after an initial period of knowledge transfer from the site vault engineer. This transfer of skills and management of the vault construction to

---

<sup>199</sup> Michael H. Ramage, John A. Ochsendorf and Peter Rich, "Sustainable Shells: New African Vaults Built with Soil-Cement Tiles" Editorial Universitat Politècnica de València, 2010). 1517

<sup>200</sup> Anne Susan Fitchett, *Skills Development and Employment Creation through Small Public Buildings in South Africa* (2009c).

<sup>201</sup> Van Wyk, *Interview by Author*.

<sup>202</sup> Ibid.

USNA would become a central tension in the project.<sup>203</sup> Given the experimental nature of the construction technique, risk management became a key priority for SANParks and other members of the team.<sup>204</sup>

### 6.13 Recruit EPWP Beneficiaries

The geographic isolation of the site created a unique challenge for EPWP recruitment at MIC. In order to fairly distribute work opportunities, the recruitment process was divided between two nearby communities of Alldays and Musina. See Figure 6.15. Community liaison boards in each location identified the most needy beneficiaries in the community to hire.<sup>205</sup> Groups of EPWP workers from Alldays and Musina were picked up in vehicles each morning, brought to site, and returned home each evening, a round trip of over 100km to each location.

Reporting was submitted monthly by SANParks regarding the number of people employed through the EPWP. According to the SANParks site manager at Mapungubwe, due to employee attrition, recruitment in the communities was ongoing.<sup>206</sup>

*Sometimes a person doesn't want to stay long,  
he just works a few months and then he quits.  
Then you had to get another guy in and give him  
also training.*<sup>207</sup>

For this project SANParks was given permission to retain well-performing individuals for the duration of the projected 18-month construction period.<sup>208</sup> This important exemption stands in contrast to the typical standard for the EPWP where workers are asked to stand down for a period of months to allow a greater number of beneficiaries, a discontinuity that can be disruptive to workers income and a challenge to construction managers. Additionally, SANParks was able to use the EPWP to provide a base wage for

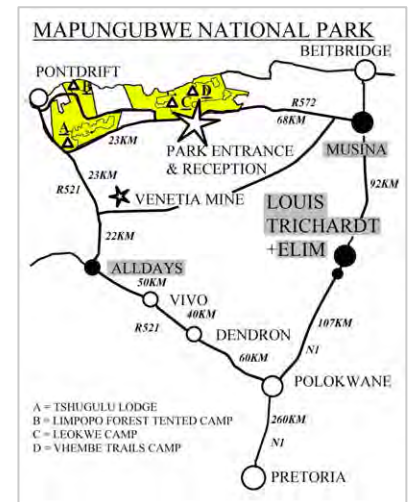


Figure 6.13 Area Map

<sup>203</sup> James Bellamy, Interview by Author via skype. April 13, 2015.

<sup>204</sup> Van Wyk, *Interview by Author*.

<sup>205</sup> Louw De Bruin, Interview by Author. April 3, 2015.

<sup>206</sup> Ibid.

<sup>207</sup> Ibid.

<sup>208</sup> Van Wyk, *Interview by Author*.

the general contractor to supplement the higher wages required to attract more skilled artisans such as the vault builders. The EPWP was used at MIC as a driver for the hiring of nearly all labour on site.<sup>209</sup>

#### **6.14 Work Opportunities at Mapungubwe**

Through the interview process it became clear that on the job-site there were several tiers of workers:

1. USNA Bouers Leadership
2. USNA Bouers EPWP Vault Builders
3. USNA General EPWP Labourers
4. Site Vault Engineer (Bellamy)
5. Clerk of Works (Prinsloo)
6. Site Architect (Kammeyer)
7. Artisan Sub-contractors (Electrical, Plumbing, Metal-work)
8. SMME Tile Making Leaders
9. EPWP Tile Making Labourers (Managed by SANParks)
10. SANParks Tile Production Manager

For more traditional EPWP workers from Alldays and Musina, once recruited to work there were two major types of work available in the project; tile making and general construction labour.

#### **6.15 EPWP Tile Manufacturing Training**

In August 2005 a two week tile manufacturing training was conducted by MIT graduate student Matthew Hodge on-site with an initial group of EPWP workers. This training was primarily leading by example and explaining the use of the tile press, correctly mixing soil, stacking tiles, and the importance of drying and curing the tiles for strength. When interviewed, Hodge recalled his surprise at the number of people to be initially trained, 20-30 in contrast to the 4-5 people he had anticipated.<sup>210</sup> The abundant labour within EPWP architectural projects reflects a unique challenge of planning and management. All tiles were made on site at the Day Visitors Centre area with additional quarrying of earth nearby on the site. See Site Map in Figure 6.16.

---

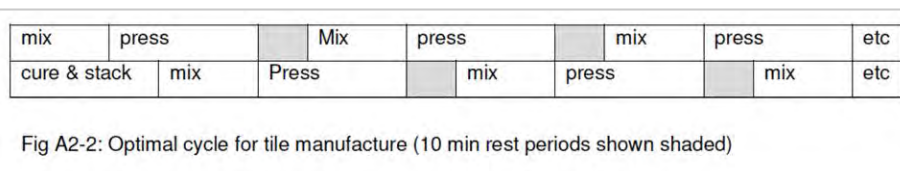
<sup>209</sup> Ibid.; De Bruin, *Interview by Author*.

<sup>210</sup> Matthew Hodge, Interview by Author via skype. June 16, 2015.



**Figure 6.14** Site Map of Mapungubwe. By Author.

In reflecting on the tile making prototyping process, Fitchett cited the differences between the near-ideal conditions of the University of Witwatersrand laboratory in contrast to the weather at Mapungubwe that can reach very high temperatures in the warm months.<sup>211</sup> In addition the short site transportation of the tiles on-site posed a significant threat to breaking the fragile tiles. The Appendix “Stabilized Earth Tile Manufacturing” to Fitchett’s PhD also provides further narrative of tile-making at MIC and suggests the optimal process shown in Figure 6.17. Here two teams each composed of three people would alternate using one press.



**Figure 6.15** Anne Fitchett Diagramme of Tile Making Cycle

## 6.16 SMME Training

A central strategy lead by SANParks was to prioritize the development of SMME’s to manage the tile production on site. Initially three SMME’s were developed uniquely to lead small groups in the manufacturing of tiles before general construction work commenced. SANParks generally seeks to develop SMME’s from workers who have even limited construction experience, have

<sup>211</sup> Fitchett, *Interview by Author*.



completed matric<sup>212</sup>, and possess a valid drivers licence.<sup>213</sup> SMME training involved NQF Level 2 business training of these three individuals that lead to registration with the Construction Industry Development Board (CIDB). Once registered with the CIDB, each SMME was hired to manage a team of eleven people, ensure attendance and achievement of work targets, and distribute payment.<sup>214</sup> The majority of the EPWP team members had no formal work experience. This structure recognized the variety of ambition among the workers:

*All 400 (EPWP Beneficiaries) that you employ can't become a small contractor and we accept that. You can't. And there are many of them who just want to be a labourer, they don't want to go beyond that.*<sup>215</sup>

A SANParks project manager was on site everyday to ensure the quality and strength of the tiles. The formation of SMME-lead teams allowed management to be distributed to these newly developed local team leaders, who might also tender for further work at the park in the future.

### 6.17 EPWP Tile Production

SANParks staff coordinated the tile making by EPWP workers over the course of 18 months with the assistance of the developed SMME's. Little detail surfaced in interviews regarding the nature of this tile-making process beyond the first weeks of training conducted by Hodge. In Fitchett's thesis an important footnote gives some clues:

*At Mapungubwe, the manufacture of the tiles was seen as an opportunity to meet poverty relief targets, but in the process there was little attention given to efficiency of production, despite a detailed work study provided by the architects to*

---

<sup>212</sup> In South Africa, matriculation (or matric) is a term commonly used to refer to the final year of high school and the qualification received on graduating from high school, although strictly speaking, it refers to the minimum university entrance requirements. (Wikipedia.com)

<sup>213</sup> Van Wyk, *Interview by Author*.

<sup>214</sup> Ibid.

<sup>215</sup> Ibid.

*the project manager. The result was that the tiles which should have cost R1.70 ended up costing over R7.00 because of the low output in relation to the daily wage.*<sup>216</sup>

Additional mention is made to challenges in the efficiency of the tile manufacture in a conference article by Ramage et. al:

*During the design development of the complex, a cost comparison was made between stabilized tiles and reinforced concrete for the vaulting. Despite the low productivity of the tile manufacture due to ongoing training, the tiled vaults were found to be 30% more cost effective.*<sup>217</sup>

The reported number of total tiles made for the project range from 200,000<sup>218</sup> to 300,000<sup>219</sup>. Initial estimates for the expected output per tile-press were significantly higher than actual output, although the low wages associated with EPWP workers meant the overall costs for material production remained relatively low.<sup>220</sup> Interviews revealed high levels of breakage in the transportation of the fragile tiles across the site as well as challenges in on-site vs. laboratory conditions of the tile production.<sup>221</sup> It is also unclear whether these initial estimates accounted for the extensive chain of inputs leading to the tile production at the press, including quarrying the soil, sifting, and transporting across the site from the Day Visitors Centre where tiles were produced and stored for curing to the Interpretive Centre where vaults were assembled. It is clear a lot of lessons were learned in this highly experimental building process

*The project has provided insight into ways to improve the process for next time, both from*



Figure 6.16 Tile Production

---

<sup>216</sup> Fitchett, 197

<sup>217</sup> Ramage, Ochsendorf and Rich, *Sustainable Shells: New African Vaults Built with Soil-Cement Tiles*

<sup>218</sup> Ramage et al., *Design and Construction of the Mapungubwe National Park Interpretive Centre, South Africa*.

<sup>219</sup> MH Ramage, T. Hall and P. Rich, "Light Earth Designs: Natural Material, Natural Structure" (2014).

<sup>220</sup> Ramage et al., *Design and Construction of the Mapungubwe National Park Interpretive Centre, South Africa*; Fitchett, 2009

<sup>221</sup> Fitchett, *Interview by Author*; Franz Prinsloo, Interview by Author via skype. July 12, 2015.



*mechanical aspects such as the efficiency of tile making (we can now make them 3 times as fast) and from architectural and engineering aspects (we have a better understanding of which forms are better for training and skill-building).*<sup>222</sup>

This suggestion raises fundamental questions with regards to efficiency of production through the EPWP. At MIC, what impact would making the tiles three times faster have had? Is efficiency a reasonable goal when time is the key element required to transfer wages to workers though the EPWP daily wage?

EPWP tile production was based on a day-wage structure with SMME's seeking to achieve certain output targets. While a task-rate payment structure might incentivize greater production, this might lead to labourers earning higher wages that compete with the open market and contradict the goals of the EPWP. In discussions with SANParks, it became clear the need to balance efficiency of tile production and the social goals of employment for people in poverty from nearby communities. This is an important aspect of DesignWork as the constituency of workers may have little experience in traditional work settings and different expectations concerning productivity.

### **6.18 Vaults**

Central to the design of the Interpretive Centre was a sequence of spaces enclosed by tile vaults of varying sizes, each to be constructed on site using the EPWP-produced tiles. Given the highly experimental nature of the construction, there was much uncertainty concerning the process of building.<sup>223</sup> James Bellamy, the New Zealand-based builder with experience from the Pines Calyx was recruited to lead the vault construction. Engineer Michael Ramage assisted on-site in the early stages of construction in the creation of wooden guides, due to difficulty

---

<sup>222</sup> Ramage et al., *Design and Construction of the Mapungubwe National Park Interpretive Centre, South Africa.*

<sup>223</sup> Rich, *Interview by Author.*

finding suitable carpenters willing to work in this remote rural region on the project.<sup>224</sup>

### Recruiting Vault Builders

A key finding that emerged from project interviews was a clear distinction between two different EPWP worker types. Unlike the EPWP tile-makers, the EPWP-subsidized vault builders were primarily masons and general construction workers from the communities of Louis Trichardt and Elim, approximately 100km from the site.<sup>225</sup> See map in Figure 6.15. Many of them had previously worked with USNA and were recruited for this job.<sup>226</sup> Like USNA staff, these workers lived on site for this project, returning home once a month to Louis Trichardt/Elim. The vault builders were housed in tents while the USNA staff was housed in SANParks accommodations. A review of the Code of Good Conduct, the central EPWP contract, revealed no clear policy with regard to accommodation and wage payments. This significant difference of work conditions among workers employed through the EPWP was an unforeseen tension at MIC.



**Figure 6.17** Labour-Type Illustration

### Vault Builder Training

Early training exercises challenged workers to build small test vaults to gain understanding and confidence with the technique. This vault building method was anomalous to the region and prior building skills were not required. Bellamy explained:

<sup>224</sup> Ramage, *Interview by Author Via Skype*; Rich, *Interview by Author*.

<sup>225</sup> Bellamy, *Interview by Author Via Skype*.

<sup>226</sup> Piet Van Staden, *Interview by Author*. June 26, 2015.

*For me the skill was something that we were able to teach anyone and I wasn't looking for particular masons or anything. By the end it was very much about attitude and their confidence and the ability to get into it.*<sup>227</sup>

The initial plan was for Bellamy to be on site for one to two months and transfer leadership to USNA site managers for the completion of the majority of the vaults. Due to the difficulty transferring the vault leadership Bellamy remained on site for eight months, requiring additional monetary allocation from the project budget.<sup>228</sup>

Relations between USNA site managers and many of the vault builders were often strained. Sources of conflict included the perception of low wages and difficult working conditions for the vault builders.<sup>229</sup> These stresses would have an effect on the architectural quality.

*For me that was the hardest thing in the whole project, wasn't the actual construction but the people dynamics.*<sup>230</sup>

According to Bellamy, the tensions between the lead contractor's managers and vault builders would manifest in the quality of workmanship in the vault building.

*I had to take over the management of those people because as soon as they came on site (USNA managers), things would go, they would get tense. They weren't able to flow.*<sup>231</sup>

In a labour-intensive and repetitive construction method, this "flow" was critical to achieving quality craftsmanship. Despite the challenges on-site, the rapport among the vault-builders and pride in their work emerged in interviews with both site staff and two of

---

<sup>227</sup> James Bellamy. Interview by Author. Skype/New Zealand. April 13, 2015.

<sup>228</sup> Michael Ramage. Interview by Author. Skype/Oxford, England. April 30, 2015.

<sup>229</sup> Bellamy, *Interview by Author Via Skype*.

<sup>230</sup> Ibid.

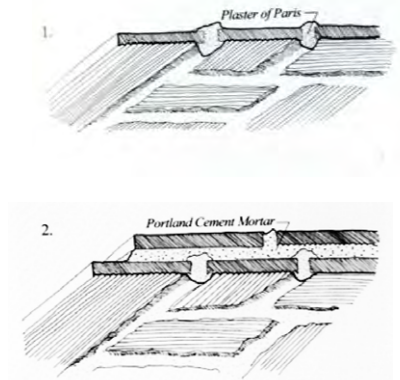
<sup>231</sup> Ibid.

the vault builders.<sup>232</sup> Nonetheless there was a high level of turnover among vault builders, a challenge which necessitated ongoing training.<sup>233</sup>

The process of vault building forced a hierarchy of skills on the job site. The first layer of tiles required the most skill in ensuring the correct form and depended on the use of fast-setting gypsum (or Plaster of Paris), an uncommon material in the region.<sup>234</sup> The person at the top of the vault was the leader and the final link in a chain of work that began with the quarrying of soil and tile making months earlier and ultimately was put into place utilizing quick setting plaster and manual dexterity. Subsequent layers were easier to construct and involved the layering of tiles atop this initial form set with a Portland Cement based mortar.<sup>235</sup>

In order to curb the risk of this novel construction process the team began by constructing the vaults for the SANParks office that would be enclosed. A contingency plan was to consider plastering the interior ceiling if the appearance of the tiles was deemed unsatisfactory.<sup>236</sup> Ultimately these ceilings were left unplastered.

Work continued on the remaining vaults. A sample timeline provided by Bellamy showed that at certain points of the project up to seven vaults were in different stages of construction concurrently.<sup>237</sup> For this, a team structure was formed where team leaders at the top of each vault doing the plaster setting of tiles would manage the whole process leading to their work.



**Figure 6.18** Image from Guastavino Vaulting of Initial Tile Layers

<sup>232</sup> Heinrich Kammeyer. Interview by Author. Architects Office, May 29, 2015. Elim Worker 1, Interview by Author. June 27, 2015.; Elim Worker 2, Interview by Author. June 27, 2015.

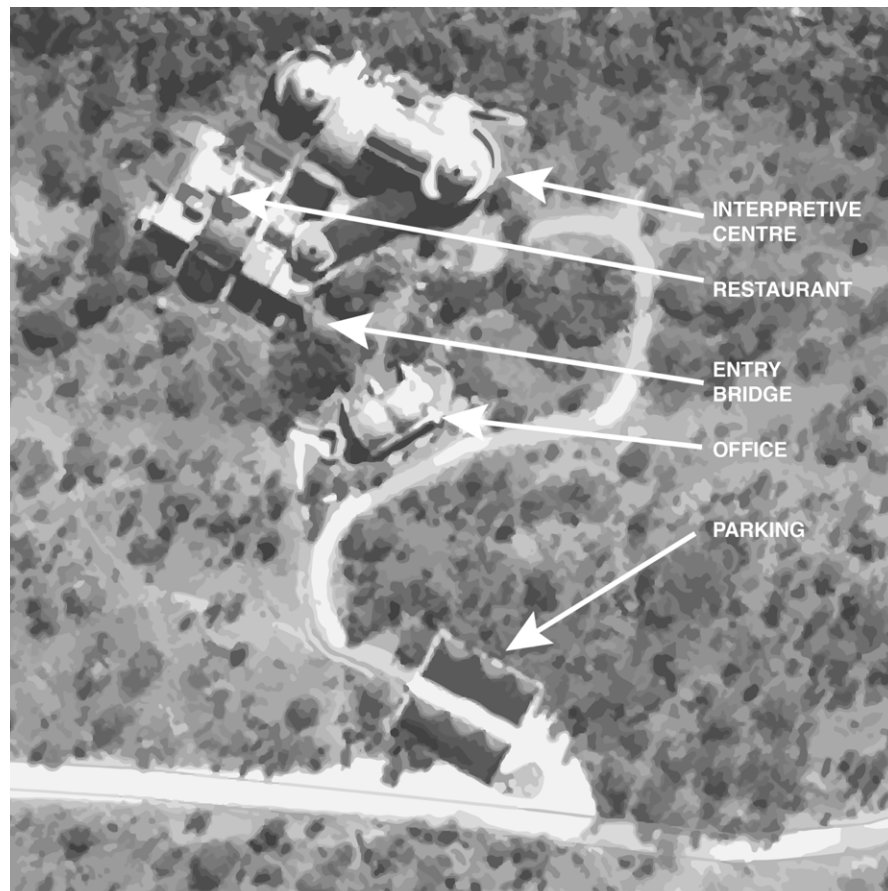
<sup>233</sup> Africa.; James Bellamy. Interview by Author. Skype/New Zealand. April 13, 2015.

<sup>234</sup> Michael Ramage. Interview by Author. Skype/Oxford, England. April 30, 2015.

<sup>235</sup> Fitchett,

<sup>236</sup> Edoghogho Ogbeifun, "Training Artisans on-Site," *Australasian Journal of Construction Economics and Building*, The 11, no. 3 (2011), 82.

<sup>237</sup> See Appendix F.5 for Sample Critical Path Timeline of Vaults



**Figure 6.19** Interpretive Centre Site Map

### **6.19 Managing EPWP General Labourers**

EPWP was managed uniquely at MIC in response to the complexity of the construction process and remoteness of the site. EPWP workers from Alldays and Musina were transported to the site daily and returned home each evening. These workers were initially exclusively involved with tile-making managed by SANParks but a portion of the group were later allocated to general site work under USNA. The role of SANParks at Mapungubwe was to manage the EPWP workers and ensure compliance and achievement of the person/days goals for the project.

According to lead contractor Piet VanStaden a surplus of EPWP labourers were often made available for the completion of tasks on site. He explained some of the challenges in the context of the EPWP:

*In town I would use 5 guys to do the same job.*

*Now because it's SANParks I must use 10 guys.  
You must put more guys to work. And they  
(SANParks) pay for that.<sup>238</sup>*

VanStaden recalled that often from a group of twenty EPWP beneficiaries sent to site, a handful would be told not to return, replaced by other EPWP recruits until the right group could be formed.<sup>239</sup> This “tryout” process within the EPWP would prove to be resource intensive, with effort invested in recruitment, signing contracts, transportation to the site, and being brought up to speed on the site processes, only to be let go if not adequately engaged in the work tasks assigned. Those who proved capable of working hard were exposed to a variety of informal on-the-job skills training in areas including concrete work, stonework, brick masonry and carpentry work.<sup>240</sup>

### 6.20 Additional EPWP Training

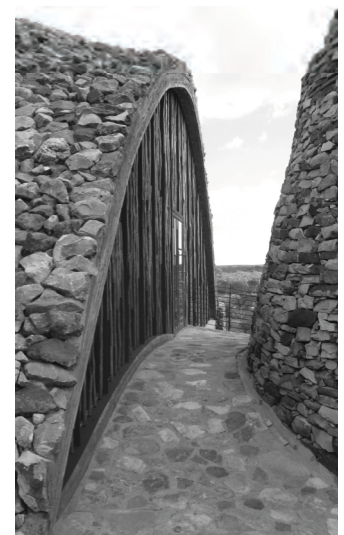
According to the statistics provided from SANParks, in addition to the task related training on-site for tile manufacturing there was also a range of general life-skills training offered to EPWP beneficiaries. None of those interviewed were knowledgeable in specifics regarding these life-skill trainings. There was no evidence of any formal training of any kind among the 80 vault-builders whose wage was subsidized by the EPWP.<sup>241</sup>

### 6.21 Project Completion

While this project was completed in December 2009, there were a series of lagging elements that extended the timeline and delayed the opening of the Centre until September 2012.<sup>242</sup> One major challenge to opening the building was a pair of problems with some of the vaults. The first issue concerned the tiles on the edge of the vaults, which could wick water into the initial gypsum bonded tiles and cause them to fall out. An edge detail was re-worked to shed



**Figure 6.20** Detail of repaired Vault-edge



**Figure 6.21** Vault with rocks

<sup>238</sup> Van Staden, *Interview by Author*.

<sup>239</sup> Ibid.

<sup>240</sup> Ibid.

<sup>241</sup> Bellamy, *Interview by Author Via Skype*.

<sup>242</sup> Rich, *Interview by Author*.; Jo-Anne Duggan, *Interview by Author*. June 4, 2015.



**Figure 6.22** Views inside completed exhibit spaces

the water and vault edges were re-made with cement mortar rather than gypsum. This was resolved locally.

The second issue involved instances of rocks mounted on the exterior of the vaults sliding. These rocks served multiple purposes, including adding weight to the structure to resist potential wind-uplift, providing a thermal buffer for summer heat, and visually blending the building in with the surrounding landscape. For this Bellamy returned from New Zealand to assist in resolving the issues.

### 6.22 Exhibition Design

Fervent discussion occurred throughout the project regarding the inclusion of air-conditioning to allow for precise climate control of the exhibit areas.<sup>243</sup> This building was designed to be naturally cooled, however ultimately the building was retro-fitted with air-conditioning. This work, which also involved the use of a small number of EPWP general labourers, occurred after the overall building construction was complete. The requirements of the building for exhibition were highly contested.<sup>244</sup> A central concern was the requirements to house valuable cultural artefacts on loan from the University of Pretoria.<sup>245</sup> Exhibit design was lead by Jo-Anne Duggan and this was the final work completed before the official opening of the project on September 10, 2012. No EPWP component was included in this work.

### 6.23 Job Outcomes

Project interviews revealed varying reports of long-term job outcomes resulting from MIC. SANParks was clear that this project was understood to be a once-off building to create short-term poverty relief work opportunities with no expectations for longer-term follow-up or continuity.<sup>246</sup> Given the unconventional and highly

<sup>243</sup> Ibid.in

<sup>244</sup> Ibid.; Rich, *Interview by Author*.

<sup>245</sup> Geoffrey York, "The Return of the Golden Rhino." *The Globe and Mail*, <http://www.theglobeandmail.com/news/world/the-return-of-the-golden-rhino/article545513/?page=all> (accessed 10/2/2012, 2016).

<sup>246</sup> Van Wyk, *Interview by Author*.



engineered nature of the building, SANParks oriented the management structure and goals towards developing SMME's who could be registered with the CIDB.

Van Wyk described an experience at MIC where an SMME leader developed through the EPWP could then tender to bigger projects and is still working as an independent contractor in the region.

*On a project basis, the government, everyone accepts this project will run for two years and then it's done, there is no promise about jobs or long-term jobs. What we as implementer try is to make the projects more sustainable by trying to create SMME's and many of those come back and work in the park during the operational phase.<sup>247</sup>*

The development of SMME contractors seems to be the most optimistic element of the longer-term impact on economic opportunity for involved workers. This structure allows for local leaders to be developed as flexible businesses that can tender for future work in the park or in the open market. The project site manager described a few individuals who were initially temporary employees of USNA but were hired by SANParks for longer-term work.<sup>248</sup> Among interviews with project leaders some stories emerged of positive longer term outcomes, particularly for SMME's trained in the tile manufacturing process.

*One of the contractors that worked for us in the Mapungubwe Interpretive Centre is now working for the park for 2-3 years and is doing the elephant enclosure plots.<sup>249</sup>*

Best outcomes included permanent employment with SANParks for former EPWP labourers. While a tracer study to confirm these reports was beyond the scope of this research, there is evidence of SANParks hiring select beneficiaries for more permanent posts

---

<sup>247</sup> Ibid.

<sup>248</sup> De Bruin, *Interview by Author*.

<sup>249</sup> Ibid.



from EPWP “tryouts”.<sup>250</sup> SANParks, unlike many other public agencies, employs many local people in rural areas as staff at their parks. In this context, an EPWP project can represent a unique “tryout” for a longer-term position within SANParks. Additionally, USNA reported retaining 5-6 of the EPWP workers for a period beyond the scope of the Interpretive Centre project.<sup>251</sup>

Unlike projects within employment guarantee schemes like the Gundo Lashu or the Community Work Programme, once the EPWP building work is completed, it is very difficult to facilitate follow-up opportunities. This is particularly acute in rural areas far from additional job opportunities. Van Wyk candidly articulated the challenges and limits of building-based EPWP:

*I have almost got 14 years experience; if people tell you about this high labour-intensive during construction I have never seen one project really, especially through EPWP where you do achieve that. You can achieve that, but you have to build such a structure to do the supervision and the training which is not feasible in terms of the money you spend for a once-off project. Especially in the case of National Parks where one national park is situated here and the other is in an entirely different area, it's not like you can transfer people to do work at another site. Whatever the people tell you, my experience is it's project based.*<sup>252</sup>

At Mapungubwe the highest level of skills transfer achieved seems to be among the lead vault builders. The uniqueness of this skill creates challenges in further career advancement due to the rarity of the demand for this skill in the area.

*The upsetting part is that there is no continuity. Here you have men (vault builders) who have acquired a skill that is unique, sought all over the world, but no continuity. So you walk off those sites, and go back to being labourers. That's a sad part.*<sup>253</sup>

---

<sup>250</sup> See Page 3 of Appendix H.2 for list of SANParks positions created.

<sup>251</sup> Van Staden, *Interview by Author*.

<sup>252</sup> Van Wyk, *Interview by Author*.

<sup>253</sup> Heinrich Kammeyer, *Interview by Author*. May 29, 2015.

In the course of interviews several ideas within the project for future vault building opportunities emerged. Bellamy recalled discussions about a follow-up housing project in the region to provide work continuity and a beneficial application of this new skill. Rich described discussions about a follow up dormitory housing plan near the Interpretive Centre to allow for over-night accommodation of tour groups. Plans for a new vaulted entrance gate at Kruger Park, South Africa's largest national park located about 200km from Mapungubwe have been discussed for years but have not proceeded forward.<sup>254</sup> These projects would have provided the possibility for work continuity. Van Wyk, however, was clear in her understanding of the temporary nature of these positions and this reality of the EPWP programme:

*I can tell you from our side the job ends. We try to make it more sustainable by giving people other skills beyond the project so we can employ them again.*<sup>255</sup>

Initial research concerning this project involved a review of award citations. A silver lining regarding skills transfer seemed to appear in the citation given by the World Building of the Year Award, which stated:

*The project's agenda extends beyond the presentation of ancient and more recent history of the area to awaken an understanding of the vulnerability of the local ecology. These objectives are manifested in the construction process of the Centre in which unemployed local people were trained in the manufacture of stabilised earth tiles and in building the timber vaults. This knowledge has been accepted into the culture of the region, with the masons continuing the skills they have learned by using the remaining tiles for their houses in nearby villages. Thus, the Centre not only tells a story, but has become part of a story that is still unfolding, of culture developing in symbiosis with its natural legacy.*<sup>256</sup>

---

<sup>254</sup> Rich, *Interview by Author*.

<sup>255</sup> Van Wyk, *Interview by Author*.

<sup>256</sup> See full citation in Appendix A.1

Despite extensive research both in the region during site visits and in interviews with participants no further anecdotal or physical evidence substantiated the claims made in this citation regarding local adoption of the technique by builders on their own homes or otherwise. To the contrary, most interviewees responded at the unlikelihood this highly engineered construction technique could be safely or confidently carried out independently in further construction in the area.

One aspect of the fieldwork of this research was to follow up with two of the lead vault builders of the project, neither of whom had heard of or had been involved with any further construction in the region. This was a disappointing aspect of this research both in terms of not locating adaptation of the technique but also in recognizing the presence of an unsubstantiated but hopeful suggestion from the award that has most often been cited with this project in popular reference. Unfortunately the nature of internet media has lead this story to be adapted in multiple forms. This version of the project narrative is unhelpful in understanding the links between architectural design, training and further work opportunities and evidences the need for more rigorous accounts of DesignWork outcomes.

#### **6.24 Reflecting on Thesis Objectives:**

##### **Objective 1. Develop an understanding of the EPWP Programme structure within architectural projects.**

At MIC the experience of SANParks in implementing the EPWP comes to bear at all levels. This began with introducing a competition with specific requests for labour-intensive design. Once a design was selected SANParks arranged a management structure to enable labour-intensive tile making to precede general construction. Negotiating longer-term contracts for EPWP employees increased worker continuity on site and income relief for beneficiaries over a more sustained period. With few job opportunities available workers had incentive to stay with the programme for the duration of the project. Fully aware of the

anomalous construction system being implemented, SANParks focused energy not on certified skills trainings but on developing SMME's who might tender for future project work and employ people in the park beyond this project.

Use of the EPWP as a wage supplement enabled nearly all labour on site, regardless of wage, to be channeled through the programme. This included the more skilled workers recruited by USNA, using the EPWP as a base wage added to in order to attract more skilled workers. The remote rural location required partnership with two local municipalities and the lead contractor to recruit the required workforce.

**Objective 2. Investigate the links between architectural design and work opportunities.**

As a unique response to the design brief from SANParks, Rich and his team created a design that would lend itself to labour-intensive construction techniques while focusing this labour to achieve the goal of creating a building of international merit. SANParks as a public agency showed remarkable ambition in selecting this design from the competition. Given the nature of the design proposal, once SANParks selected this design there was not a "Plan B" and so all of the uncertainties of the design became the concern of all parties in the project. Winning the competition demanded commitment from the design/engineering team to the process of research required to build it. To do so, the architect acted as orchestrator assembling teams of talented individuals to enable the project to happen.

This was only possible because the architect leveraged personal relationships to enable material research and development that would allow for labour-intensive construction utilizing the soil from the area in combination with sophisticated engineering and abundant labour resources. At times the high level of innovation

within the project meant the architect, public agency and the lead building contractor taking on uncomfortable levels of risk.<sup>257</sup>

DesignWork at MIC yielded two distinct paths to labour intensification; the tile manufacturing lead by SANParks and SMME's and the vault building and general construction crew lead by Bellamy and USNA. The past experience SANParks had in managing the EPWP within building projects allowed a structure to be developed that buffered the lead contractor from the difficulties of managing materials production on site. Nonetheless, the unfamiliar construction method proved very difficult to transition to the lead contractor's more traditional building skills.

While the architect took a strong lead as principal agent, his role in relation to EPWP job training was limited to assembling the right team members to work directly in the construction and training on-site. These included a site based architect as "Clerk of Works" managing the day-to-day site activities and Bellamy, a vault-building specialist leading this most difficult construction element.

This chapter has attempted to present a balanced narrative from which to consider DesignWork in the context of the Mapungubwe Interpretive Centre. Chapter 8 will analyse key project data collected according to the three primary EPWP goals: Income Relief, Skills Development, and Asset Creation.

---

<sup>257</sup> Author. Antionet Van Wyk. Interview by Author. SanPark Head Office. Pretoria. March 30 2015.



**Figure 7.1** Panorama of Ocean View construction site.

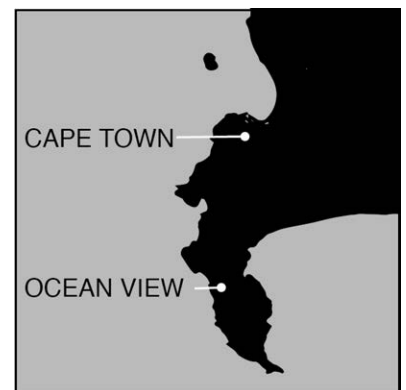
## **CHAPTER 7: Ocean View Housing<sup>258</sup>**

### **7.1 Introduction to Housing**

A primary Reconstruction and Development Programme (RDP) infrastructure goal since 1994 has been to address the need for suitable housing for those most marginalised by decades of Apartheid policy. This remains a legislated national priority. According to Section 26 of the South African Constitution:

*(1) Everyone has the right to have access to adequate housing.*

*(2) The state must take reasonable legislative and other measures, within its available resources, to achieve the progressive realization of this right.<sup>259</sup>*



**Figure 7.2** Area Map

The National Housing Act of 1997 articulates the role of government in housing provision. Throughout the country, government agencies work to ameliorate poor living conditions by funding the development of houses for people below a determined poverty line. While this housing takes on many forms<sup>260</sup>, the dominant model is the “RDP House”.

<sup>258</sup> The official name of this project is the “Ocean View(Mountain View) Housing Project” however within this thesis this will be simplified to Ocean View Housing both for brevity and to align with much of the media coverage of the project.

<sup>259</sup> *Constitution of the Republic of South Africa*, Public Law 108, (1996): 26.

<sup>260</sup> See Appendix G.1 for table of Housing Subsidy Types

The “RDP House” is new permanent government sponsored housing that is transferred without cost to residents, along with a title deed. These houses are typically built to a standard size of 40 m<sup>2</sup>.<sup>261</sup> Ocean View Housing represents an opportunity to understand the possible applications of DesignWork and the EPWP within this ubiquitous housing model.

## 7.2 Project Background

The site for the Ocean View Housing Project is located 40 kilometres south of Cape Town. The closest neighboring area is the wealthy enclave of Kommetjie (Figure 7.3). The Ocean View neighborhood; originally called Slangkop, was established in 1968. It was populated by predominantly “coloured”<sup>262</sup> former residents of Cape Town who had been forcibly removed through the Apartheid-inspired Group Areas Act of 1950.<sup>263</sup>



**Figure 7.3** Map of Site and Adjacent Areas.

<sup>261</sup> *National Housing Act*. (1997): .

<sup>262</sup> Within this paper, racial terminology from the South African context will be adopted, simply to conform to contextual conventions. These classification were central to Apartheid legislation and its policies to divide the community based on race.

For clear definitions of racial terms in South Africa see the introduction to *Victoria Mxenge Housing* by Salma Ismail. Here defined: “*coloured: refers to people who were disenfranchised during apartheid, are of mixed origin and speak Afrikaans or English.*”

<sup>263</sup> Anthea Clare Stephens, *Negotiating Boundaries: Co-Managing Natural and Urban Areas on the Cape Peninsula* Department of Environmental and Geographical Science: University of Cape Town, [1998]; D. Maralack and Abraham Kriel, “Area Study of Cape Town: A Streetless Wasteland: A Preliminary Report on Ocean View,” (1984).



In 1986 an additional 108 families were forced to relocate to the adjacent area that became known as Mountain View. These families were mainly living adjacent to nearby predominantly white areas of Noordhoek and Clovelly. They were given temporary accommodations at Mountain View in the form of long barn-like structures with meager dividers between rooms and no finished floor, with a promise from the City of Cape Town government to provide adequate housing in the year ahead.<sup>264</sup> It would be over 28 years before the community finally saw their housing need reach the City of Cape Town's agenda.

### 7.3 Peoples Housing Process

The City of Cape Town Department of Human Settlements<sup>265</sup> South Division was the lead public agency for this project. Departmental goals were established according to the City of Cape Town municipal 5-year Integrated Development Plan (IDP). In 2006 the City of Cape Town formally initiated the Ocean View Housing Project as a new development of government-subsidized housing through the People's Housing Process (PHP). Built on examples like the Victoria Mxenge Housing project described in Chapter 2, the aim of the PHP is to incorporate community decision making



**Figure 7.4** Neighborhood Map of Ocean View

<sup>264</sup> Denise Izaks, Farrahdieba Sauls and Sharmaine Rasdien, Shared Interview by Author. June 15, 2015.

<sup>265</sup> See Appendix G.1 for Department Organogram



within housing development. According to the Human Settlements website:

*The People's Housing Process is people-driven and beneficiaries have a say in the process and can decide what type of housing should be built. It aims to deliver better human settlement outcomes based on community contribution and partnerships.*<sup>266</sup>

At the heart of the PHP is developing a strong Support Organization.<sup>267</sup> The Support Organization acts as the lead developer with the option to choose a capable building contractor



**Figure 7.5** 2012 Photo of Mountain View Community with original 1986 housing buildings outlined in white amidst added informal housing.

<sup>266</sup> DHS, "People's Housing Process. National Department of Human Settlement," <http://www.dhs.gov.za/content/peoples-housing-process> (accessed 8/23/2015, 2015).

<sup>267</sup> See Appendix G.2 for further description and responsibilities of the Support Organization. The structure of the People's Housing Process team at Ocean View is diagrammed in Appendix G.3.

to lead the construction, while the local government agency monitors the progress, timeline and the distribution of funds.

At Ocean View, the Support Organization was comprised of 17 community members from Ocean View and Mountain View responsible for establishing the rules of the development, including local hiring goals to be met, and the means of implementing the construction work. The Support Organization then appointed two Community Liaison Officers (CLO's) to monitor the day-to-day activities and manage resident issues on site.

#### 7.4 Project Development

From the beginning the project site, a rocky 10-hectare<sup>268</sup> plot which backs up to Cape Point Nature Reserve, was a central challenge. Extensive excavation work was required in order to create roads, level sites for housing, and to develop sanitation infrastructure. According to the CLO's interviewed, City of Cape Town officials had for years used the site conditions as an excuse for not addressing the need to rehouse the original 108 families relocated to Mountain View.<sup>269</sup>

In 2006 the Mountain View Action Committee and ex-councillor<sup>270</sup> Johnson took action and located a civil engineering firm to explore the costs associated with grading and stone removal.<sup>271</sup> For a small contingency fee<sup>272</sup> a sub-contractor began the work of hauling away stone. The rocks were exported until a leader from the Mountain View Action Committee, Walied Izaks, suggested they consider building with this stone on site.<sup>273</sup>

This initial work proved the possibility of developing the site. Additionally, because of the initiative that came from within the

---

<sup>268</sup> 10 Hectares is equivalent to approximately 25 acres or 100,000 m<sup>2</sup>

<sup>269</sup> Izaks, Sauls and Rasdien, *Shared Interview by Author*.

<sup>270</sup> According to the City of Cape Town website: "The City Council comprises 221 councillors, half of who are ward councillors and the other half who are elected on the proportional representation list – according to their political party's strength. "

<sup>271</sup> Ibid.

<sup>272</sup> according to anecdotal information from the CLO's this was R20,000

<sup>273</sup> Ibid.

Mountain View community to develop the land for housing it was decided that it would be a PHP development. The City of Cape Town then formally engaged civil engineering work in 2006, primarily concerned with leveling the site to make way for new housing. It took four years to break up the rock on-site and complete the civil engineering work.<sup>274</sup> In the process, a stockpile of quarried sandstone, exploded with dynamite from the existing site, was created.

A significant change in the planning of the site occurred when the City of Cape Town proposed increasing the site-density to accommodate more families within the new development. While the original plan divided the land among 145 families, each receiving plots 350-400m<sup>2</sup>, the new plan increased the density to 543 houses with 100m<sup>2</sup> lots.<sup>275</sup> This meant more families would be recipients of new housing but with much smaller lots than the families anticipated. The new density of development would be approximately 54 dwelling units/hectare. Important for the future, this lot size reduction also constrained areas for possible additions to the small homes. This was a highly controversial shift in the project and remains a source of contention among current and future homeowners.<sup>276</sup>

## 7.5 Funding

The primary funding of construction costs for this project came from the City of Cape Town. The subsidy allocation for RDP housing in the region at that time was R 83,000/house. The Head of the Human Settlement South Division Office Pauline Houniet accessed the Mayor of Cape Town's Special Job-Creation Fund to fund a portion of the training budget.

---

<sup>274</sup> Mary Anne Constable, "Ocean View: A New Hope for Future," *Urban Green File* - 0044, 2013, 42.

<sup>275</sup> See Appendix G.4 for documentation of the shift in lot-size

<sup>276</sup> Izaks, Sauls and Rasdien, *Shared Interview by Author*.

A key shift in the project came when the City of Cape Town approached the Provincial government to approve R 6,000,000 funding to develop a stonemason-training programme and retain the stone for housing construction instead of removing the stone to a landfill site. This included the costs for developing a six-month stone masonry training programme and hiring architects and engineers. The proposal was accepted and funding from the Provincial Training fund was made available.<sup>277</sup> This led to a series of innovations within the project. A small project in Mbekweni in 2008 paved the way for this ambitious approach.<sup>278</sup>

### 7.6 Mbekweni Stone Houses

In 2005 this pilot project set out a trial development built of twenty houses, with the hope that it could lead to a much larger scale development.

*At Mbekweni, a central builder's yard and sustainable construction school were set up on site to train the local youth. Inmates from the nearby Allandale Prison were also trained and involved in the construction process.*<sup>279</sup>

Twenty inmates participated in a sixty day training and work-release programme. The significance of this development was two-fold. First, it represented an innovative approach to job-training goals being combined with housing creation. Additionally, the resulting houses were similar in cost to conventional RDP houses but with vastly different architectural outcomes. In an interview in 2006, Houniet described her ambitions for the project:

*In contrast to the concrete block 51/6 'hot-box' sterile contractor cloned low cost houses, I would like to combine waste streaming, site resources and sweat equity to produce an aesthetically pleasing, insulated, energy efficient, replicable and culturally approved 'home'. Youth training learnerships and/or beneficiary skills training in*

---

<sup>277</sup> Pauline Houniet, Interview by Author. July 15, 2015.

<sup>278</sup> Ibid.

<sup>279</sup> Blake Robinson, ""Resolving Urban Poverty and Ecological Sustainability have Nothing to do with One another" -a Critique" (Masters, Sustainability Institute), .

*house construction prior to project commencing and I want to see the support organization taking control of their projects and not the suppliers.*<sup>280</sup>

The construction, lead by Cape Town architect/engineer Vernon Collis and architect Anna Cowen, was based on sourcing as much materials from local waste as possible. Discarded under floor carpet padding was used as insulation in the roofs and discarded granite was used as tiles for flooring. Small round stones, abundantly available on the sandy site, were collected and utilized for primary building facades. Additionally, other waste-stream materials were identified and incorporated into the project, including waste palette wood, concrete from curbs, discarded bricks, and shutter ply.<sup>281</sup> The homes were completed in 2008. Mbekweni also revealed the possibility of developing qualified job-training programmes on site. Here twenty-eight youth received NQF Level 2 training certificates.<sup>282</sup>



**Figure 7.6** 2012 Photo of Two Mbekweni Stone Houses. By Author.

---

<sup>280</sup> Sandy Godlwana, "Career File: Pauline Houniet," *Department of Local Government and Housing Newsletter*, March, 2006, .

<sup>281</sup> Robinson, "Resolving Urban Poverty and Ecological Sustainability have Nothing to do with One another" -a Critique

<sup>282</sup> Vumile Ncedani, "Unemployed Youth Stand to Benefit from a Building Project." *Department of Local Government and Housing*, December, 2006, 8.

In the time that followed, instead of continuing with community built homes, Mellow Housing Initiative was selected to be the lead contractor to deliver the hundreds of remaining homes. The key element that could not be accounted for with the community built homes was the pace of development needed to complete the project in a timely manner in accordance with departmental expectations. A site visit revealed the beauty and texture and of these stone houses amidst the hundreds of small multi-coloured homes scattered across a vast area.

The experience of Houniet in the work at Mbekweni informed her boldness to approach a 543-unit housing development that would also rely on a large supply of locally sourced material and community members as builders.

### 7.7 Deciding on a Builder

At Ocean View, Mellon Housing Initiatives (MHI) was selected as the project's lead contractor.<sup>283</sup> Since 2002, MHI has been involved in development work throughout South Africa:

*We are a non-profit organization that adopts a social development approach to building quality houses for disadvantaged communities, through strategic alliances with government, the private sector, civil society organizations and individuals.*<sup>284</sup>

Their work began in the informal settlement of Imizamo Yethu near Hout Bay in Cape Town, frequently coordinating "blitz builds" whereby largely Irish volunteers arrive for a period of time, typically one week in duration.<sup>285</sup> MHI has extensive experience in the management and construction of RDP housing developments.

---

<sup>283</sup> MHI Initiatives is a division of Niall Mellon Township Trust, an Ireland based NGO funded by Niall Mellon, an Irish property developer and philanthropist.

<sup>284</sup> NMTT, "Niall Mellon Township Trust. LinkedIn," <https://www.linkedin.com/company/niall-mellon-township-trust2015>).

<sup>285</sup> Jerushah Rangasami and Anthony Gird, *Summary Report: Rapid Impact Assessment of NMTT's Work in Imizamo Yethu, Cape Town from 2003-2005*, [2007].

The CLO's expressed frustration with the process of selecting MHI, which they felt did not include full participation of the Support Organization or reflect the spirit of the People's Housing Process.<sup>286</sup> The CLO's described how, from the outset, the community had developed a construction database to show the number of qualified contractors in the communities of Ocean View and Mountain View hungry for construction work. Nonetheless the project moved forward with MHI as the selected lead contractor.

While MHI typically uses their own architects to design the housing,<sup>287</sup> at Ocean View the City of Cape Town initiated bringing on-board a separate architectural team.<sup>288</sup>

### 7.8 Tender for Architects

In March 2012 the City of Cape Town advertised a tender *Request for Services* seeking architects experienced with stone masonry design.<sup>289</sup> This emerged from Houniet's understanding of the importance of architects.

*We have to start changing the perception of low-cost housing. The only way we can do that is with architects.*<sup>290</sup>

This tender did not specifically indicate the presence of the EPWP within the project or the necessity to design for labour-intensive construction but did solicit architects with stone construction experience.<sup>291</sup> Two Think Architects and Greenhaus Architects formed a joint venture to respond to the unique context of the project. This team had worked together in the past and was selected to proceed with initial design drawings. Andre Spies (Two Think Architecture) focused on design and production of drawings,

---

<sup>286</sup> Izaks, Sauls and Rasdien, *Shared Interview by Author*.

<sup>287</sup> Theo DeVilliers, Interview by Author. May 26, 2015.

<sup>288</sup> Houniet, *Interview by Author*.

<sup>289</sup> City of Cape Town, *Call for Proposal from Architects. Department of Human Settlements. 15 March 2012.*[2012]. See Appendix G.5 for excerpts from the brief.

<sup>290</sup> Houniet, *Interview by Author*.

<sup>291</sup> See excerpts from this tender document in Appendix G.6.



while Etienne Bruwer (Greenhaus Architects) focused on design, stonemasonry training, and site management.

### 7.9 Initial Housing Design

As an RDP-model housing development, the home size of 40m<sup>2</sup> was a defining characteristic.<sup>292</sup> While 40m<sup>2</sup> is cited as the minimum size for a house, discussion with the project team revealed this was in practice the maximum allowable size for RDP housing. Within this parameter, Bruwer and Spies set out to design housing to facilitate stone use with layouts responsive to the dense development context. Beyond the special conditions of stone usage, the City of Cape Town did not specifically request architects to incorporate labour-intensive design elements or to achieve specific targets concerning the EPWP within the project.



NORTH EAST CUT AWAY VIEW

**Figure 7.7** Early Rendering of house interior with Vaulted Ceiling

Early house designs featured up to 80% stone facades.<sup>293</sup> Housing layouts varied and included courtyard schemes, freestanding houses and houses with shared walls. Initially the architect team conceived of ways to use salvaged lumber and process it in a carpentry workshop to employ local people making building

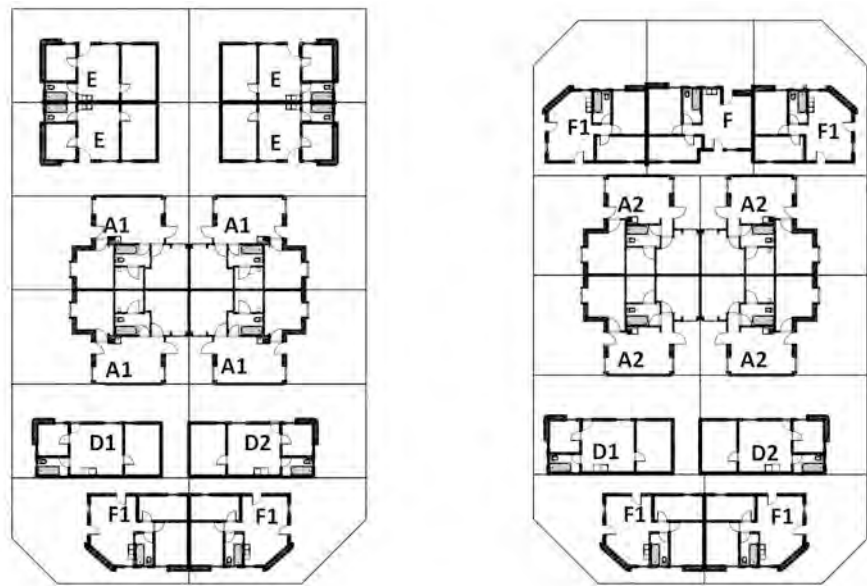
---

<sup>292</sup> DHS, *National Housing Code*. Department of Human Settlement. South Africa

<sup>293</sup> Andre Spies, Interview by Author. May 12, 2015.



elements such as doors and windows on-site.<sup>294</sup> One spatial concept proposed was the use of open gables with shutter ply on the interior to enable greater interior volume within the small living spaces. See early rendering in Figure 7.7. Initial designs also considered a polystyrene and concrete form construction system for non-stone walls, instead of factory sourced concrete block.<sup>295</sup> Ultimately these three initiatives did not prove affordable according to the lead building contractor MHI.



**Figure 7.8** Sample plans from adjacent blocks at Ocean View showing 5 housing types (A, D, E, F, F1)

One important early victory was achieved through minute negotiations with the National Home Builders Registration Council (NHBRC)<sup>296</sup> to allow the 40m<sup>2</sup> to be calculated based on interior spatial dimensions rather than inclusive of wall thickness. This was a key exemption with the presence of the thick exterior stone walls.

The use of site stone provided a key element of visual continuity. In addition, several subtle details greatly improved the look and feel of the houses vs. traditional RDP housing. One element was the variety of cement roof tiles used to create a mottled affect. Secondly, all concrete block that remained on the site was painted

<sup>294</sup> Ibid.

<sup>295</sup> Ibid.

<sup>296</sup> The NHBRC is a regulatory body of the home building industry.

with a subtle range of cementitious paint, which allowed for a varied but unified overall colour palette.

### **7.10 Site Design**

Given the density of housing on the site and small 100m<sup>2</sup> lots, a critical component of the design became the overall site plan. Figure 7.9 shows the site plan. To avoid the monotony of a single house plan densely repeated across a large site, a diverse set of five housing types was developed. Figure 7.8 shows a pair of sample blocks and the range of housing types provided. Due to the constrained site size, early designs also sought to carefully position homes on each plot to allow room for possible future expansion.

A flexible system was developed for the houses building with two distinct types of structural walls, either concrete block or stone walls. Concrete block was used on side and rear facades and as a reveal around windows and doors to facilitate easier installation of these elements. Stonework primarily occurred on street facing facades. Stone took longer to construct and was generally more costly but was seen to be more beautiful and “upmarket”. Concrete block was a more expedient material but associated with lower cost housing. Throughout the project, the ratio of wall types would be negotiated between the architect team and MHI.

### **7.11 EPWP Recruitment**

The primary residential areas targeted for job training within the Ocean View Housing development were residents of Ocean View and the Mountain View Informal Settlement.<sup>297</sup> These neighborhoods had high levels of unemployment<sup>298</sup> and the goal established early on in the planning process was to utilize this construction work to maximise the positive impact on the local economy, both in terms of dollars spent and skills transferred in the process. Initially some community leaders resisted the use of the EPWP for the project:

---

<sup>297</sup> Clifton Carolus, Interview by Author. June, 1, 2015.

<sup>298</sup> 2011 Census Data of unemployment at Ocean View reveals overall unemployment at 21%. See Appendix H.3 for further details.



Figure 7.9 Overall Site Plan

*EPWP is just another name for labour-broker. Because that means I am not binding myself to that person by not promising that person a permanent job. So I will rather use them when I need them and pay them minimal. But then it means I don't have to owe them anything which means I save money.*<sup>299</sup>

Despite these objections, once the EPWP was adopted for the project, the Support Organization played a central role in the recruitment effort. In order to participate in the EPWP programme, community members registered at the Ward Councillor's office. This placed them on a database of applicants from which MHI could contact, interview and enroll additional EPWP beneficiaries on an as-needed basis.<sup>300</sup> Selection of beneficiaries from the Council Database was random to avoid favouritism.<sup>301</sup>

EPWP at Ocean View utilized three and six month contracts for beneficiaries.<sup>302</sup> This was a controversial policy. This meant that beneficiaries had a limited timeframe to participate and were required to take two months leave from the programme before they could re-enroll as space was available. This discontinuity was both an interruption to the wage transfer beneficiaries gained from the programme and put the construction team at a disadvantage in having to let workers go after 6 months and train new people.<sup>303</sup> For the beneficiaries, in the words of one of the CLO's:

*Two months kicks you in the gut.*<sup>304</sup>

This period of "standing down" was intended to maximise opportunities for a broad constituency to participate in the project. However, for individuals without other means of earning a wage the discontinuity created lots of financial stress. The difficult balance of

---

<sup>299</sup> Izaks, Sauls and Rasdien, *Shared Interview by Author*.

<sup>300</sup> DeVilliers, *Interview by Author*.

<sup>301</sup> Carolus, *Interview by Author*.

<sup>302</sup> Etienne Bruwer, Interview by Author. July 10, 2015.; Izaks, Sauls and Rasdien, *Shared Interview by Author*.

<sup>303</sup> Bruwer, *Interview by Author*.

<sup>304</sup> Farrahdieba Sauls, Interview by Author. February 19, 2016.

maximizing participation and job continuity is a common problem within EPWP projects.

### **7.12 EPWP Training**

Beyond stonemasonry training another opportunity within the project was to provide formal skills training to many community members who were already skilled or semi-skilled artisans but without licences and certifications. This lack of official licensing is a common situation in South Africa due to the legacy of Apartheid education laws. Creating opportunities for experienced artisans to gain formal training became another priority within the construction process.<sup>305</sup> Often in the context of South Africa this challenge falls under the category of “Recognition of Prior Learning.”

The EPWP Job Training at Ocean View took on four main forms:

**Type 1:** Stonemasonry Training

**Type 2:** CETA Artisan-Based Learnerships

**Type 3:** Various Certified Skills Trainings (NHBRC+CETA)

**Type 4:** Informal General Labourer Trainings

### **Stonemasonry Training**

The training curriculum for EPWP stonemasons was developed by architect Etienne Bruwer in collaboration with Elim Stonemasonry, a contracting company in Cape Town. Initially there were challenges in developing appropriate training that featured the less common load-bearing stonework featured at Ocean View in contrast to applied façade stone facing of masonry load-bearing walls.

For this, Theo Meyer, a South African mason living and working in France, came for 3 weeks to train workers in load-bearing stone wall construction. The type of wall design developed for the project maximised the use of the available range of site stones. While house facades utilized carefully selected dressed stones, infill rubble made use of smaller or less attractive stones. The interior of the stone wall was ultimately plastered. See construction detail in

---

<sup>305</sup> Houniet, *Interview by Author.*; Bruwer, *Interview by Author.*

Figure 7.10. This technique design sought to mediate competing forces of (1) teaching useful stonemasonry training techniques and (2) expedient construction.

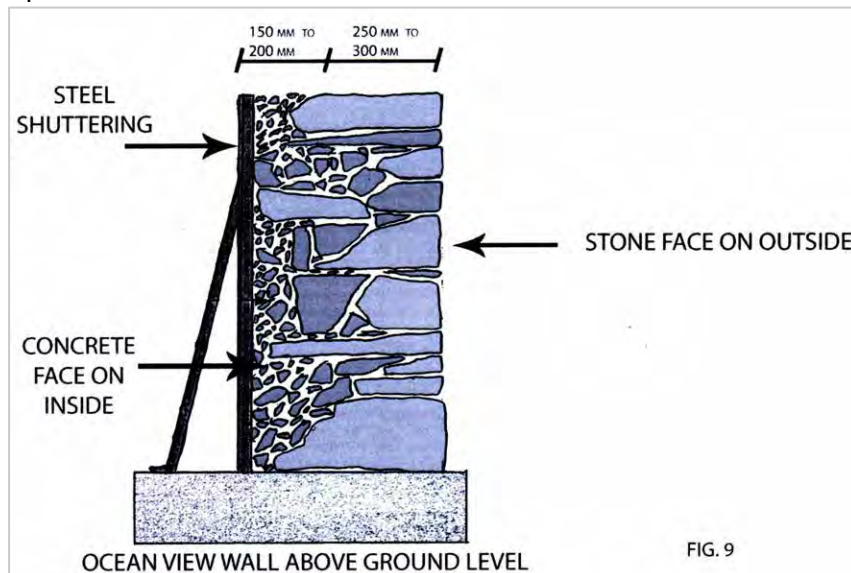
A description from the training manual developed by Bruwer explains the virtue of this method:

*For Ocean View we have come up with a method of building in stone that requires a certain amount of skill as well as being reasonably fast to construct because 500+ houses need to be build in a short space of time.<sup>306</sup>*

The manual goes on to say:

*the added bonus of this method of construction is that if it is build correctly then it will stand much longer than any of us will be standing. It will last for generations to come. Can you think of any other wall that lasts this long?<sup>307</sup>*

The initial group of 30 stonemasons were trained in a 6-month course combining classroom theory lessons and field experience.<sup>308</sup>



**Figure 7.10** Stone Wall Section from Training Manual

<sup>306</sup> Etienne Bruwer, *Stonemasonry Training Orientation*, ed. Anton Souza de Costa, 2013).

<sup>307</sup> Ibid.

<sup>308</sup> Pauline Houniet, *Ocean View (Mountain View) Housing Project. Presentation*. 30 September 2014.



For Bruwer, the critical element of the stonemasonry training was its creative component.

*A stonemason is never static, you get better with every wall you build because it is unique.*<sup>309</sup>

As both a facilitator of the stonemasonry training and an architect on the project, Bruwer was uniquely positioned to design plans with pedagogical goals. Different house types would encourage a range of training experiences with positive architectural results that resisted monotony on the large site. These included structural stone corners, rounded corners, angled walls and other skill-testing details. Stone masons were given feedback on their performance and coached to improve.<sup>310</sup>

Despite the formalization of the training programme on-site there was great difficulty in getting this training to be acknowledged by the primary skills certification body, the Construction Education and Training Authority (CETA). While CETA has certification programmes for trainees in electrical, plumbing, carpentry, brick



**Figure 7.11** Image from Stonemason classroom training.

<sup>309</sup> Bruwer, *Interview by Author*.

<sup>310</sup> See Appendix G.7 for Example of Stonemason Grading

masonry, and painting/plastering trades, there is no such certification for stonemasonry. This lead Bruwer and Houniet to lobby to establish a new stone masonry “Unit Standard” certified by CETA. This was seen as a first step in a long-term development of stonemasonry training. Part of the goal was to utilize the first generation of trained stonemasons to further the development of the trade nationwide.

*We were hoping our trainees would become the trainers of stonemasons.*<sup>311</sup>

A grant of R 3.9million was applied for from CETA in order to create a small training centre, based in Ocean View that could allow other stonemasons to come to train. This was conceived in collaboration with Theo Meyer, the on-site trainer from France, and included plans for an international exchange with a French stonemasonry programme. There was potential to have French support for this collaboration.<sup>312</sup> Despite extensive efforts by Houniet and Bruwer to establish the stonemasonry training developed for Ocean View as a recognized new unit standard the grant from CETA was not approved and this certification of the trainings has not occurred.<sup>313</sup>

In lieu of an accredited certificate, the training team developed a custom paper certificate to recognize those completing the training.<sup>314</sup>

### **7.13 Architectural Refinement**

In mid-February 2013 a Type A plan was critically tested in a pair of model homes completed in June 2013. It served as a key time-test of the pace of building with the stone, as well as a place to test the quality of the stonework. This work was supervised by the stone mason trainer Meyer.<sup>315</sup>

---

<sup>311</sup> Ibid.

<sup>312</sup> Ibid.

<sup>313</sup> Ibid.

<sup>314</sup> See Appendix G.8 for sample certificate.

<sup>315</sup> Carolus, *Interview by Author*.





**Figure 7.12** Initial pair of Model Houses constructed on site. Photo by Author.

Following these model houses the first phase of construction began. Upon completion of the first phase it became clear that the stonemasonry work, while achieving labour-intensive construction goals, was sequenced in such a way that it began to slow down other parts of the construction, including the roofing and interior work. Adjustment of the architectural design was required in order to align the stonework with the desired pace of this large development.

*We had to scale down, to change the design to suit the production. But we also had to stick to a specific type of stonework that we wanted.*<sup>316</sup>

Uniquely at Ocean View, the architects were not contractually positioned as principal agents but as sub-consultants to the lead developer/builder. Their fees came through MHI who was hired by the Support Organization. Some of this funding was appointed to the training work done by Bruwer. This arrangement reduced the architects leverage to advocate for certain design decisions in the face of value engineering. While typically it is in the client's best interest for the architect to independently advocate for construction quality on behalf of the owner(s), in the case of a typical RDP housing development there would have been insufficient fees for more conventional architectural involvement.

*There aren't any fees for architects in entry level housing. It's not structured in there, which is a huge problem.*<sup>317</sup>

---

<sup>316</sup> Ibid.

<sup>317</sup> Spies, *Interview by Author*.

### 7.14 Block vs. Stone

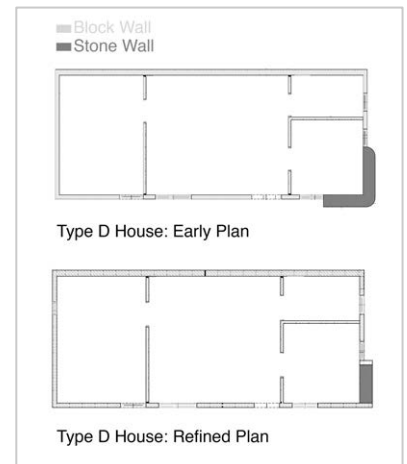
Adjusting the ratio of stonework to concrete block was an ongoing challenge in this project. Here the flexibility of the design and interchangeable wall-types was threatened by value engineering by the construction team. Additionally, prioritizing training vs. production amidst the stresses of project deadlines emerged as a key “fault line” in this project. The stonework was sourced from the site and allowed greater labour-intensity but was slower to construct. The concrete block was modular, created at a factory in Cape Town, and delivered to site, allowing for much faster construction of walls.

*We knew that the extent of stonemasonry vs. concrete block would be difficult, it would always have to be negotiated. In fact, we have been losing, because it is such an administrative hassle to do the stonework. We tried our best in the design process to integrate it. So for example the fact that the walls are load-bearing meant that they couldn't get rid of us.<sup>318</sup>*

In time the stonework was reduced to a single infill area on the street facing façade. See Figure 7.13 and 7.14 for an example



**Figure 7.14** Photo of three Type D houses with reduced stone façades.



**Figure 7.13** Type D Plans Façade Evolution to decrease stone masonry

<sup>318</sup> Bruwer, *Interview by Author*.

utilizing Type D Plans. Despite the free material of the abundant site stone, there was great difficulty in controlling the labour-cost of day-rate EPWP workers.

Stone masonry wall construction was only the final element of the labour intensification in the associated tasks which included locating suitable stones, transporting them across the site to particular houses, dressing façade stones, and mixing mortar. Additionally, stone masonry was a skill and material found in the region but associated with more affluent housing. In neighboring wealthier areas of Simon's Town and Kommetjie there is evidence of historic stone building. Its presence in RDP housing drastically alters the perception of the value of the homes. The popularity among residents meant that despite value engineering the stone has not been entirely done away with.

*...we also knew that once we had about 30-40 built the rest of the community will never allow the project to chuck out the stone because they would want the same as the others.*<sup>319</sup>

#### 7.15 Bonus Plan

An additional "customisation" of the Ocean View design occurred as the architects saw the potential that residents and entrepreneurial new stonemasons could expand their own small homes "at cost" by working together in the construction of stone additions.<sup>320</sup>

*Etienne and I tried to put this forward, if you put in the effort, you can potentially get a house with another bedroom. That's where the sweat equity could come in. If you train yourself up and get 2-3 other guys you could build at-cost another bedroom.*<sup>321</sup>

The architects took the initiative to work with each new homeowner to design plans for an addition that could be submitted to the

---

<sup>319</sup> Ibid.

<sup>320</sup> Spies, *Interview by Author*.

<sup>321</sup> Ibid.

building authorities. This was a form of “bonus DesignWork” where the architects sought to encourage future additions and subsequent employment opportunities for the stonemasons.<sup>322</sup> This was also driven by a desire to positively influence the very uncertain longer term spatial planning of the site, especially regarding the importance of maintaining light and ventilation to ensure the healthiness of the new homes amidst potential ad-hoc additions.<sup>323</sup>

In addition, Bruwer advocated for creating a homeowners association for the new development to ensure a managed and considerate approach to home additions, alterations, and the aesthetics of the new neighborhood. This to date has not been formed.

### **7.16 CETA Artisan Apprenticeships**

In addition to the stonemasons there were several additional training pathways at Ocean View. From the initial group of EPWP beneficiaries, some were identified and selected to participate in CETA Artisan Apprenticeship programme.<sup>324</sup> In this three-year programme participants received a stipend and gained work experience on multiple sites. At Ocean View both electrical and plumbing trainees who enrolled were no longer a part of the EPWP.

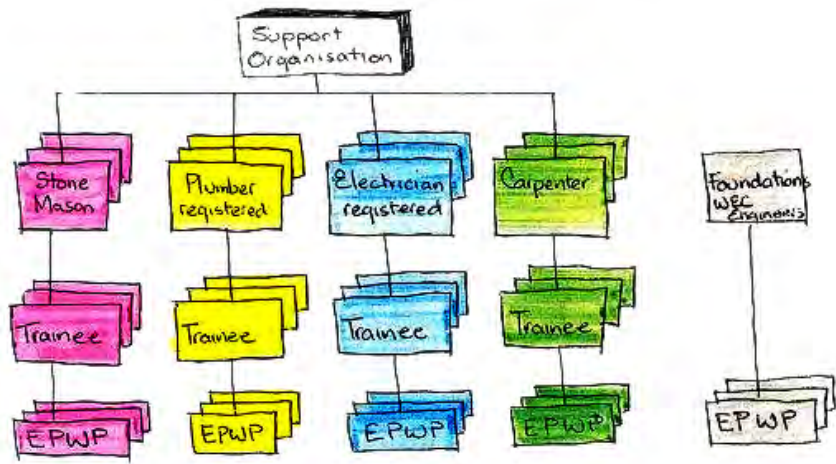
This programme structure was developed to allow for lead certified electricians and other artisans to take on additional EPWP trainees from the area. See Figure 7.15. Candidates were selected first from the Ocean View/Mountain View communities with any unfilled positions recruited from other nearby communities. This structure allowed more experienced artisans to advance their skills while allowing new EPWP workers to gain exposure during this short term work opportunity.

---

<sup>322</sup> See Appendix G.10 for sample plan of a housing addition.

<sup>323</sup> Bruwer, *Interview by Author*.

<sup>324</sup> Carolus, *Interview by Author*.



**Figure 7.15** Training Paths Diagramme (adapted from Project Organogram)

Here, CETA sub-contracted the artisan training to private vendors who conducted the training both on and off site.<sup>325</sup> For example, electricians would be on-site for 2 months and then go off-site to receive classroom training for a month. Many of these trainees would continue on to other MHI sites following the completion of Ocean View Housing to finish their 3-year apprenticeship work.

### 7.17 NHBRC/CETA Skills Development Training

In addition to the CETA 3-Year apprenticeships, a number of other artisan trainings were made available to select EPWP beneficiaries on-site. These were similarly contracted to qualified trainers and focused on the areas of carpentry, painting and plaster, and block laying. These courses ranged in duration but lead to the possibility of an NQF recognized certificate.

### 7.18 EPWP General Labour

Beyond the CETA, NHBRC, and stonemasonry trainees on site there were up to 200 additional EPWP general labourers on site at any one time. Compared to the thirty stonemasons trainees it is clear that the majority of EPWP beneficiaries at Ocean View project were general labourers. General labour beneficiaries were managed by the MHI staff with reporting done by EPWP staff and the City of Cape Town Human Settlements.

<sup>325</sup> DeVilliers, *Interview by Author*.

Early in the project, substance abuse among recruited local beneficiaries became a serious problem that eventually lead to the assignment of professional counselors to intervene and offer resources to the community.<sup>326</sup> In the first year, absenteeism among EPWP workers created a significant impediment to progress in the construction work. In an attempt to make up for lost time, a larger number of EPWP general labourers were assigned to the site. More EPWP workers can at times create unmanageable stresses on the project team. This would become a central challenge of the project.

At one point independent monitors were hired to assist MHI in managing the large number of EPWP workers, each employed to monitor the work of 20-30 EPWP workers.<sup>327</sup> The work on site was very demanding physically and many did not want to do this type of work.

*Many of the people were out of work for years. Coming into a job situation where they had to work from 8 to 4 every day. Some of them just walked off the site. We had hundreds of disciplinary hearings. We had to replace people on regular intervals until we found the right mixture of people.*<sup>328</sup>

Eventually, the process yielded a more stable group of committed workers. This “tryout” within the project to find the right workers was taxing on the project team and affected the project schedule. These beneficiaries generally worked in small teams. For MHI, EPWP workers represented a huge variable over which they had limited control.

Within the project, management structures emerged. A site-foreman described a useful strategy of assembling groups of people in teams of ten, with one leader. Interestingly team size is

---

<sup>326</sup> Carolus, *Interview by Author.*; Bruwer, *Interview by Author.*

<sup>327</sup> Carolus, *Interview by Author.*

<sup>328</sup> Ibid.



Figure 7.16 Team Size Diagram

recommended by Fitchett and McCutcheon and reflects the ancient Roman approach to construction team management.<sup>329</sup> Work of these teams ranged from digging foundations for housing to mixing mortar to assisting in concrete pours.<sup>330</sup> In this work, EPWP labourers gained broad exposure to all key elements of the construction and were seen on site visits digging foundations, pouring concrete and building walls and roofs.

As a result of the challenges of managing day-rate EPWP workers, increasingly MHI sought to use the option of hiring sub-contractors to manage the delivery of services for a tendered price. This meant trying to mitigate the scheduling challenges of day-rate EPWP workers in favour of contractors hiring EPWP workers independently for task-rate wages. This type of contract put MHI in greater control of project variables. This represents a critical challenge within the context of EPWP work; interference with the builders management efficiency.

*The bottom line is if you pay a guy per day he's only going to put so much in if he's not into it himself, if he doesn't got that self respect and that goal to get somewhere and he's just here to work, to earn his daily income. You're not going to get 100% out of him. Whereas if it's tasked based, if he doesn't work he doesn't get paid. That's why we've always gone that route (task based) because it just works. That's the industry norm right through South Africa.<sup>331</sup>*

### 7.19 Job Outcomes

Given that Ocean View is still under construction at the time of publishing this thesis, it is difficult to discuss evidence of job outcomes. However, there is some compelling evidence for new prospects for some of the EPWP beneficiaries.

---

<sup>329</sup> McCutcheon and Fitchett, *The Critical Importance of the Handson Site Supervisor*.

<sup>330</sup> Insight into project based on July 22, 2015 site visit.

<sup>331</sup> DeVilliers, *Interview by Author*.

Given the connection to the City of Cape Town and as beneficiaries of the Mayor's Special Project funding, stonemason trainees at Ocean View may have exceptional access to future work opportunities. According to Houniet, the City of Cape Town has expanded ideas for future employment opportunities for the stonemasons working on needed historic renovation work, as well as newer stonemasonry retaining wall projects and roadwork buffer walls in the region.<sup>332</sup>

In informal discussions with workers on the site there are indications that a culture of craft has emerged among the stonemasons. Acting as both trainer and architect, there was evidence of a positive rapport with the stonemasons on site as Bruwer described the "signature" of different stonemasons and the evolution of the style and patterns of stonework throughout the site. There is ongoing discussion about the possibility of a further Gap Housing<sup>333</sup> project in the area. This could provide an opportunity for the group of trained stonemasons to continue working in the region.

According to DeVilliers, many CETA trainees are already working for MHI sub-contractors on further projects. Perhaps the best possible outcome is to see that some of the EPWP workers have begun to leave the programme for better paying work outside.

*We have lost some sub-contractors, we've lost some workers that we've trained. Local guys are actually making better money outside. Which I will never stop a guy from doing. It makes you feel good because that's the idea behind it and it's actually working. You can't take a skill away from a guy, he will have it for the rest of his life. So he will always have an income.*<sup>334</sup>

---

<sup>332</sup> Houniet, *Interview by Author*.

<sup>333</sup> "Gap housing is used to describe the shortfall in the market between state-supplied residential units and housing opportunities delivered by the private sector. Residents in this market earn too much to qualify for state assistance, yet earn too little to qualify for home loans in the private property market."

<https://www.capetown.gov.za/en/Pages/3newGapHousingopportunitiesCT.aspx>

<sup>334</sup> DeVilliers, *Interview by Author*.



Already there have been reports of stonemasons leaving the project for more lucrative opportunities elsewhere.<sup>335</sup> This may be the truest sign of economic empowerment; the acquisition of new skills that enable freedom to choose from a range of job-opportunities rather than dependency on a single governmental programme. In addition, there exists the potential that even the modest wages of the EPWP can provide a valuable opportunity to “tryout” for further work with MHI. DeVilliers explains:

*I've been with the company 10 years, and whichever guys has proven himself a good subcontractor, a good worker, we always try and move him to the next projects, that's bottom line.*<sup>336</sup>

## 7.20 Reflecting on Thesis Objectives:

### **Objective 1. Develop understanding of the EPWP Programme structure within architectural projects.**

At Ocean View a narrative emerges of an intensely community based urban project. Site visits revealed EPWP workers streaming in each day and returning home each evening. In response to high levels of unemployment in the area, shorter EPWP contracts enabled broader participation but also created discontinuities on site and for beneficiary income relief following shortened employment periods. With this came unexpected challenges of high levels of substance abuse within the community affecting work on site. At 80% completion, the community pool of available EPWP labour has been exhausted and many have been sent home as unfit for the task.<sup>337</sup>

Regarding training, Human Settlements leadership effectively sought funding that made possible greater architectural involvement in design and training. Multiple training paths for up-skilling of workers were made possible through additional funding

---

<sup>335</sup> Ibid.

<sup>336</sup> Ibid.

<sup>337</sup> Carolus, *Interview by Author*.

from other government departments while the urban location enabled locally qualified training resources

Importantly, within this single project the potential to have multiple certified training paths emerges. Stonemasonry at Ocean View had the unique quality of being harvested from the site, in contrast to all the other components of the building, which were imported from industrial suppliers in the area. These elements included gang-nailed wooden trusses, concrete blocks, doors, windows, and cement roof tiles. Each of these more conventional materials also had potential to be produced on site to further expand local labour opportunities, as in the case of Victoria Mxenge Housing referred to in Chapter 2. However, it became clear from interviews that the stress of management of the EPWP workers on site had at times neared a breaking point where the overall success of the project was threatened. Therefore, in this case the stonework and general labour was the priority for EPWP work.

**Objective 2. Investigate the links between architectural design and work opportunities.**

At Ocean View, both the role of the EPWP and the abundant site stone had radical impact on the traditional architect's role. Additional funding allocated to the project for the stonemasonry training allowed for greater architectural involvement both in the design and on-site training of EPWP stonemasons. The architect team's ongoing one-on-one interaction with new homeowners to plan for expanding their homes was also unique. This project challenges the traditional housing development concerning the architect's role to carefully consider both building and site design.

DesignWork here manifests the two way street, that architects design work conditions for the poorest of the poor whilst work performance of these individuals can affect design outcomes both positively and negatively. At Ocean View the critical role of the management structures in mediating DesignWork ideas into built reality emerges into clear view. Here architects effectively developed labour-intensive designs for the aims of the initial tender

brief only to have their innovations discarded for expediency of the construction process. Multiple factors (drug problems, absenteeism) lead to management challenges that caused timeline and budget stresses and threatened the quality of the asset created for many families who have been waiting over two decades to realize their dream of home ownership.

The stone elements of the housing plan emerge as the central DesignWork within this project. It could be argued that the reduction of stonework within the evolution of the construction project is simply a case of “value engineering”. However, this is a pivotal issue in the project because this was the primary area where the labour-intensive value the architects were charged with creating was realized. In lieu of broader manufacturing of materials on-site there are very few opportunities within this project beyond the stonemasonry to significantly increase the amount of EPWP labour opportunities.

Here it is important to distinguish those opportunities that arise through DesignWork vs. opportunities enabled by ambitious management structures and coordination of agencies to make multiple skills programmes possible. Many of these pathways are less indicative of the affects of the DesignWork of the architects and more reflective of the management priorities of implementing government agencies, community organizations, and the builder.

For example, at Ocean View a CETA plumbing trainee does not affect the fact that a two-bedroom house has two sinks, one shower, and one toilet, it only affects who installs them. Whereas a labour-intensive façade such as the stonework at Ocean View can replace factory produced concrete block and enable opportunities for local labour in mixing, refining, transporting and stone-packing, thereby deepening the wage transfer and skills development in the project to those willing to work from the nearby community. While each of these outcomes reflects well on the EPWP goals of skills training, only the second is a design response that affects this context.

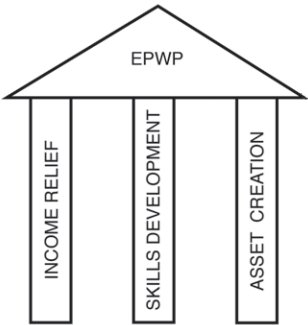
Discussions with the CLO's of this project revealed that in places such as Mountain View where people are struggling with limited job options, EPWP work can be the only available option. For these reasons, there is good cause to thoughtfully consider how to further extend EPWP opportunities in community based building projects. The necessity of whole-team coordination within a project to take DesignWork to the next level is a key lesson from Ocean View.



**Figure 8.1** Photos of workers at Mapungubwe Interpretive Centre (left) and Ocean View Housing (right)

## CHAPTER 8: Data Collection and Analysis

Income relief, skills development, and asset creation emerged within this thesis as the basis from which to assess EPWP projects and the affects of DesignWork. EPWP work opportunities, though low in wage are critically differentiated from casual construction labour by three elements (1) the emphasis on skills development (2) the targeting of the poorest of the poor with preference for women, youth and the disabled and (3) the adherence to the Code of Good Conduct contract signed by employees/employers. Following interviews and site visits; key project data was requested from project leaders.<sup>338</sup>



**Figure 8.2** EPWP Column  
Diagramme

### 8.1 Income Relief

EPWP is structured to target the poorest of the poor for whom these job opportunities are a rare source of steady income. Labour-intensity, measured by EPWP reporting criteria as person-days correlates to the goal of income relief for participants thru enrollment in the EPWP.

<sup>338</sup> See Appendix H for letters of request and complete responses.

**Figure 8.3:** Income Relief Table

Project	Mapungubwe Interpretation Centre	Ocean View Housing (Current August 2015)	Ocean View Housing (Projected Totals)
% Complete	100%	80%*	100%
Total EPWP Person Days Worked	47876	40311	49741
Total EPWP People Employed	*160	1067	1333.75
Average Days of EPWP Tenure	N/A	38	37
Total Area of Building m <sup>2</sup>	2753	23023	28779
EPWP Person Days/m <sup>2</sup>	17.39	1.75	1.73

\*This figure represents the number of positions allocated within the project not the actual number of people employed for these position. This data was not available from SANParks.

Figure 8.3 reveals that MIC generated 47,867 person-days whilst OV (80% complete at time of data collection, including 2591 person/days of initial civil site work) generated 40,311 person days. This table does not refer to the *total labour* utilized in the completion of each project, which in both projects also featured the work of sub-contractors independent of the EPWP that is delimited from this thesis. In this regard, it is not intended to indicate the labour efficiency of the overall project. However, common to both projects was a large utilization of EPWP labour for most tasks on site.

EPWP person-days/m<sup>2</sup> is a useful metric of analysis to relate project scale and labour intensity. Further studies related to other EPWP and building construction using this metric would lead to more nuanced expectations of EPWP labour-intensity in relation to different building types. Traditionally cost/m<sup>2</sup> metrics have been developed to usefully anticipate the economics of different building types. More extensive research could elevate the ambition of project teams regarding EPWP labour intensity within architectural projects. The data collection of this thesis seeks to establish baselines for future research.

## 8.2 Income Relief at Mapungubwe Interpretive Centre

MIC featured EPWP usage of approximately 17 EPWP person-days/m<sup>2</sup>. The major contributor to this labour effort was in the production of tiles for the vaults that totaled 28, 512 of the 47,876 overall EPWP person-days.<sup>339</sup> See Figure 8.4. The productivity of tile manufacturing at MIC and the efficiency of on-site materials production emerged as a key area in need of further consideration in future projects. Here the goal of expedient construction competes with the need for job opportunities through the EPWP as a means to income relief.

Function	No of SMME's	No of People	Months	Person days
Tiles manufacturing	6	72	18	28 512
Interpretive Center (Main contract): Roof construction		30	8	5 280
Interpretive Center (Main contract): General labour		22	15	7 260
Services & other general work on site	*3	36	8	6 824
<b>TOTAL</b>	<b>6</b>	<b>160</b>	<b>27</b>	<b>47 876</b>

Note: \*3 - Same SMME's used that were created as part of tile manufacturing.

**Figure 8.4** Detail of MIC Labour Intensity from SANParks reporting.

Reflecting on this large increase in EPWP person-days through on-site tile production at Mapungubwe, Anne Fitchett commented:

*You are employing a lot of people digging out, actually in the quarrying work, and in the tile making. And that was something that Robert McCutcheon actually predicted. He said you're probably not going to make inroads, building is pretty labour-intensive, there's a lot of work per metre that goes into making a building, but where you are likely to make strides, is in your materials production. Looking at innovative materials, looking at historical processes and so on, and out of that you are likely to come up with something that really will create jobs. But your actual putting tile on tile, brick on brick, timber on timber, you're probably not going to make, you might be able to improve a bit, you might have 50% more jobs than if you just done it business-as-usual, but you're not going to make a massive breakthrough there. And that was quite interesting because his insight*

<sup>339</sup> SANParks, *Overview of EPWP Project in Mapungubwe National Park and World Heritage Site* (Pretoria: ,[2015]).



was absolutely dead-on.<sup>340</sup>

### 8.3 Income Relief at Ocean View Housing

At OV the overall labour intensity amounts to 1.75 EPWP person - days/m<sup>2</sup>, much lower than MIC. This reflects the project narrative of the most labour-intensive activity being attributed to the processing of the stone for the stonemasonry facades, an element that became an increasingly small percentage of the overall construction method. While there were EPWP workers allocated to other labour-increasing elements on site, such as preparing foundations and trenches, site visits revealed this was largely in combination with conventional machine based methods.

Also revealed in Table 8.3 is the high levels of turnover among EPWP employees at OV. The reported 1067 people at 80% completion indicates an average EPWP worker tenure of only 38 working days. This corresponds with the narrative of the project and the problems with substance abuse and absenteeism.

Nonetheless, based on the reported average of the housing projects reported in Figure 8.5, the comparatively high level of EPWP hours at OV is apparent.<sup>341</sup> The 4<sup>th</sup> Quarter 2014/2015

Project Name	Funder	Annual Budget	Annual Expenditure	Person-days Work	Work Opportunities	Average
Construction of Botshabelo Houses	Department of Co-operative Governance, Traditional Affairs and	2,059,250.00	1,496,460.00	9,769.00	466	50
Ndevana 922 Housing Project	EC - Department of Human Settlements; EC - Department of Hur	2,115,068.00	823,667.00	1,335.00	47	67
270 Top Structure	NC - Department of Cooperative Governance	2,300,545.00	985,947.00	1,256.00	35	100
Melkhoutfontein 170 Low Cost Housing Proj	Hessequa	2,423,625.00	89,682.36	438	18	80.55
Welbedacht east	eThekweni Metropolitan	2,571,429.00	365,421.30	2,441.00	73	95
Ntshabeni 200A	EC - Department of Human Settlements	2,642,470.00	796,073.00	148	13	99
Westonaria Borwa	GP - Human Settlement	2,924,376.00	471,408.00	3,416.00	163	138
Ocean View Mountain View Stone Masonry	City of Cape Town Metropolitan	3,057,974.00	1,407,141.00	12,340.00	289	100
Civil Services for 200 rental Units	NC - Department of Cooperative Governance	3,130,000.00	3,129,963.00	165	9	150
MHLONTLO 619	EC - Department of Human Settlements	3,187,851.00	2,108,600.00	1,270.00	45	100
198 ERVEN POFADDER	NC - Department of Cooperative Governance	3,209,789.00	583,598.00	1,635.00	23	150
Kriek Business Enterprise	MP - Department of Human Settlements	3,296,000.00	346,500.00	1,166.00	22	120
Imvani 145	EC - Department of Human Settlements; EC - Department of Hur	3,555,789.00	2,597.00	483	31	80
Construction of 117 PHP Houses Newl	MP - Department of Human Settlements	3,557,640.00	18,460.00	260	4	71
Van Wyksvlei 130	NC - Department of Cooperative Governance	3,600,000.00	1,131,475.00	110	5	100
Prieska :Fairview Ext 15: 310BNG Ho	NC - Department of Cooperative Governance	3,847,900.00	1,603,292.00	1,126.00	14	85
Egoli 243 Housing Project	EC - Department of Human Settlements	3,883,779.00	156,745.00	818	15	30
Beaufort West 240 IRDP	Beaufort West	3,990,026.00	3,990,026.00	1,281.00	72	71.9
Ntuzuma D 2	KN - Department of Human settlements	4,000,000.00	260,640.00	1,097.00	11	110

**Figure 8.5** Ranked Table of EPWP Housing Projects according to Annual Budget/person-days

<sup>340</sup> Fitchett, *Interview by Author*. 2015



EPWP Overall Spreadsheet offered unique insight into the breadth of EPWP involvement in RDP housing development. With over 15,000 EPWP projects reported nationwide, 206 appeared to be RDP Housing. Figure 8.5 displays data from 20 of these 206 projects in a close range to OV based on the Annual Budget to compare the person-days of work achieved.

Ocean View stands out among the other projects. However, discussions with Houniet revealed the limits within EPWP housing projects. She indicated that the level of EPWP intensity at Ocean View could not be sustained on multiple projects in her department concurrently due to the intensity of staffing time allocated to management. The unique combination of the challenges of a rocky site, exceptional funding for training, and a PHP-based project set Ocean View apart.

#### **8.4 Skills Development**

The second key measure used in this thesis is EPWP workers earning Construction Skills Certificates through structured training, to prepare workers for increased employment opportunities beyond the limited duration of the project. These structured skill trainings evidence an intention within the project to meaningfully improve the future job prospects of workers by enabling transferable experiences. The nature of the construction industry creates the unlikelihood of entry-level labourers outside of the EPWP having structured opportunities to learn certified skills on the job. For most employers this creates a threat that employees will leave for better pay elsewhere. This is a unique aspiration of the EPWP that differentiates the programme from private sector low-wage casual labour.

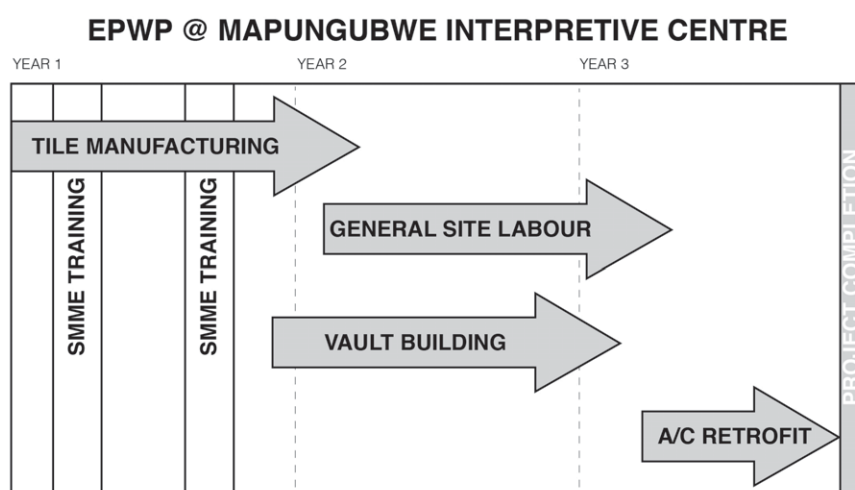
Figure 8.6 measures training outcomes and SMME's development for each project. Here CETA-certified trainings are prioritized as specific evidence of construction skill development, with additional non-certified Construction Certificates also accounted for.

**Figure 8.6:** Construction Skill Training Deliverables

Project	Mapungubwe Interpretation Centre	Ocean View Housing (Current Aug. 2015)	Ocean View Housing (Projected Totals)
% Complete	100%	80%	100%
# CETA Construction Skill Certificates	0	24	48
# Non-Accredited Construction Certificates	0	32	32
% Workers Earning Construction Certificates	N/A	2.15%	5.78%
Total SMME's Developed	6	2	2

### 8.5 Skills Development at Mapungubwe Interpretive Centre

Accurately identifying the skills development data for MIC proved more difficult, in part due to the timing of this research and the main construction being completed over five years ago. Despite the generous effort made by SANParks to track down data for the purpose of this thesis, the reporting between SANParks and the Department of Environmental Affairs remains ambiguous. During the MIC project, accredited training was the responsibility of the Department of Environmental Affairs and was not made available for this study. Based on interviews with MIC project leaders, while general life skills training were reported within the project no

**Figure 8.7** Mapungubwe Interpretive Centre EPWP Diagramme

reports of any formalized CETA Certified skills trainings emerged.<sup>342</sup>

What is clear is that SANParks understood the techniques of the building's construction to be anomalous to the region and did not emphasise formalized skills training for either of the central activities at MIC: tile manufacturing and vault building. SANParks chose to focus effort on developing SMME's who could manage the tile making process during the making of MIC and tender for future work in the park and potentially employ EPWP workers beyond the project.

However, it is certain that, in order to complete this project extensive training of workers was required to adapt to this unfamiliar construction method. For all construction activities, workers received necessary on-site training to complete the required tasks however these trainings were not formalized or associated with any CETA Construction Skill Certificates. There was no certification for the tile making or vault building training and few of the USNA/Bellamy managed EPWP vault-builders remained employed for the duration of the project due to high employee turnover.<sup>343</sup> Beyond the SMME trainees, no MIC participants were reported to have received any form of construction skills training certificates.

Some team members saw value in the development of new skills among workers on the job, regardless of the certification:

---

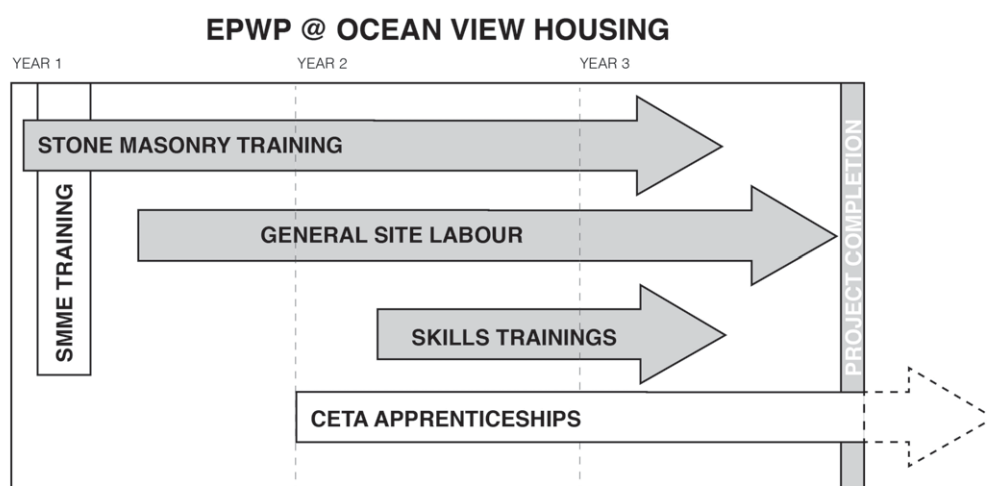
<sup>342</sup> email correspondence with Van Wyk revealed the difficulty of obtaining more detailed training information given the time that has passed from the completion of training to this research request: *"You will therefore have to qualify the fact that during the MIC project, accredited training was the responsibility of the Department of Environmental Affairs and that information was not available for the study. Furthermore, around 810 certificates were issued as part of the non-accredited training which included NQF modules."* None of these certificates could be verified for this study and it remains unclear if the trainees were involved at MIC or other construction work going on in the park at the time and whether any certificates delivered were for life-skills or construction-related skills training.

<sup>343</sup> Bellamy, *Interview by Author Via Skype*; Ramage et al., *Design and Construction of the Mapungubwe National Park Interpretive Centre, South Africa*.

*During that time we trained over 80 bricklayers in the art of thin-tile construction. This, in fact, was the most rewarding aspect of the project – teaching people to take pride in their work, and giving them a new skill. Because of the legacy of apartheid in South Africa, there was no history of craftsmanship among the black labourers; they were accustomed to completing a job without any expectation that they would be taught how to improve, and move up to greater skills and higher wages.*<sup>344</sup>

### 8.6 Ocean View Skills Development

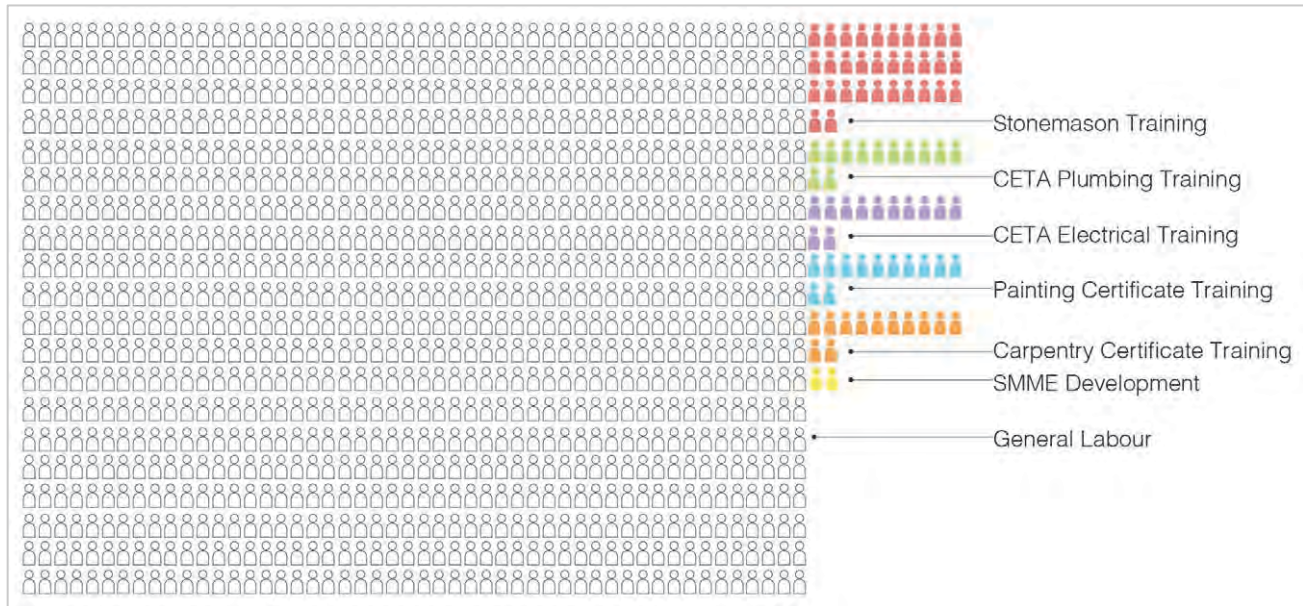
Ocean View generated 24 CETA certificates for trainees in Painting and Carpentry/Joinery and 32 informal non-accredited certificates for the Stonemasons completing the 6-month training. It is projected that among the current Plumbing and Electrical trainees an estimated 24 will likely be certified by project completion. However, while many of these Plumbing and Electrical trainees were selected from the pool of EPWP workers, once entering the CETA 3-year apprenticeship programme they were no longer EPWP beneficiaries. This creates some ambiguity in assessing outcomes.



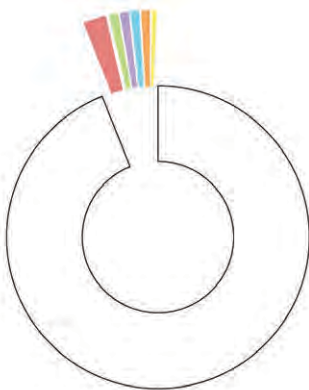
**Figure 8.8** Ocean View Housing EPWP Diagramme

<sup>344</sup> Ramage, Hall and Rich, *Light Earth Designs: Natural Material, Natural Structure*, 305-310

With the exception of the stonemasonry training architectural design had no apparent affect on these opportunities. Despite the best efforts of the project team, the stonemasonry trainings at OV failed to be recognized by CETA and to achieve an NQF Unit Standard. Ultimately participants were given a non-accredited certificate from the trainers in order to have tangible proof of their dedication and newly developed skills.



**Figure 8.9** Training Census at Ocean View Housing



**Figure 8.10** Training Census Ring Diagramme

Figure 8.9 and 8.10 illustrate the overall distribution of total EPWP general labour in relation to those receiving specialized training at OV. This frames a humbling perspective concerning the amount of trainees in relation to general labourers even in this ambitious project.

The relevance of taught skills with respect to regional employment opportunities is an important consideration when architects select building technologies. While MIC generated high levels of EPWP person/days this was largely based in the production of tiles for a construction system anomalous to the region. By contrast, at Ocean View the stone masonry training shows greater potential of enabling future work opportunities.

### 8.7 Measuring Asset Creation

Measuring the quality of the assets created is the third aspect of assessing DesignWork in this thesis. This assessment will be based on researcher site visits, external recognition of the project, and user feedback.

### 8.8 Evaluating the Mapungubwe Interpretive Centre

The SANParks brief called for a world-class building, and in terms of architectural recognition the project has achieved some of the highest honours available, including the Holcim Award for Sustainable Architecture (2008), the Alsop Engineering Award (2008), the World Building of the Year Award (2009) and being selected for a finalist for the Aga Kahn Award (2013). Concerning the architectural qualities of the building, Van Wyk commented:

*If you see it, firstly and for-mostly we can't get away that it is an impressive building and the fact that it did win the World Architecture Award for 2009 because it is an impressive building. So we do believe we got something good there. People come specifically to see.*<sup>345</sup>

However, Van Wyk framed a humbling perspective on the effect of even a great architectural intervention in such a remote area of the country:

*If you look at the visitor numbers at Mapungubwe it has been consistent so it's not like it has got a huge increase. It might be a few individuals, it's very specialized.*<sup>346</sup>

In Figure 8.4 a review of the gate toll number from 2002-2015 SANParks Annual Reports revealed gate entry statistics in the period before and after construction of the Interpretive Centre. These numbers suggest little conclusive evidence of increased attendance at the park since the Interpretive Centre opened. As a

---

<sup>345</sup> Van Wyk, *Interview by Author*.

<sup>346</sup> Ibid.

control the attendance numbers for Addo Elephant Park, another National Park that also added an Interpretive Centre that opened in 2010 have been included. This building has received less architectural media interest. With the well-known “Bilbao Effect”<sup>347</sup> the remote location (6+ hour drive from Johannesburg) may limit the architectural tourism potential. Perhaps it is simply too early to tell if this building will serve to substantially increase visitors to the park.

<b>SANParks Gate Attendance*</b>			
Year	Mapungubwe Gate Attendance	Addo Gate Attendance	All SANParks Gate Attendance
2002/2003	538	122,123	3,018,820
2003/2004	1,197	117,037	3,405,400
2004/2005	10,659	132,734	3,431,183
2005/2006	20,370	134,112	3,397,807
2006/2007	21,775	160,810	3,720,733
2007/2008	22,801	162,884	4,720,737
2008/2009	27,321	162,884	3,324,683
2009/2010	**32,279	135,109	4,512,478
2010/2011	26,675	***125,816	4,537,440
2011/2012	26,940	138,079	4,705,306
2012/2013	****33,178	161,668	4,941,697
2013/2014	30,448	186,111	5,235,095
2014/2015	35,900	204,881	5,578,532
*All figures based on SANParks Annual Reports			
**Mapungubwe Interpretive Centre wins World Building of the Year			
***Addo's Ulwazi Interpretive Centre opened 2010			
****Mapungubwe Interpretive Centre opened 10 September 2012			

**Figure 8.11** SANParks Attendance Table

Operational for over two years at the time, the site-visit revealed that the building is clearly valued and well maintained. Prominent signage documenting the process of its construction reveals pride in the uniqueness of this building and the international recognition it has received. There were no reports of problems with the building

<sup>347</sup> Witold Rybczynski, "The Bilbao Effect," *The Atlantic Monthly* 290, no. 2 (2002), 138-142.

beyond initial repairs described in Chapter 6. The highly specific purpose of the building reduces its vulnerability to alteration that could interrupt the architects design intent. Additionally, the structural integrity of the form makes it ill suited to ad-hoc additions.

One surprising impression of the site visit was the great variability in the quality of the constructed vaults. One effect of having so many newly trained workers constructing the very experimental building was room for human error in the construction. Vaults ranged from smooth curves of tiles that followed the elegant of the engineered forms while others appeared dented and visually inconsistent. At places it was difficult to distinguish between a delightful hand-made quality and poor inexperienced construction. This was most prevalent on some of the largest span vaults. The attention to detail was a central part of the architectural quality, Bellamy reflected:

*I had to let go of the way it was going to look like. It wasn't to a standard I would be happy with generally. But we just had to push on, otherwise we would have been pulling heaps of structure down and building again. The first two domes (SANParks Office) we did were way better than any of the rest which was quite surprising because you'd think the skill level would get better.<sup>348</sup>*

In contrast to this, in many situations architects demand the best quality even at the expense of remaking work to get it right. Here it seems there were too many competing forces to repeat work. Nonetheless when interviewed Rich commented with delight on the handmade qualities of the vaults, likening the patchwork seaming where the two-sides of a vault met to the beautiful mend on a piece of pottery. There is a unique beauty in the handcraftedness of this building, a quality that is uncommon in larger buildings and something that left an impression on the WAF jury:



**Figure 8.12**

Middle Joint of Tile Vault

---

<sup>348</sup> Bellamy, *Interview by Author Via Skype*.



*Judges praised the project for its roughness and hand-crafted intelligence. They also admired the way in which it handled issues of sustainability and its relationship to the landscape.*<sup>349</sup>

However, a few areas of concern related to the sustainability narrative of this project emerged from this research. First, the site based materials development was lauded for the reduction of the embodied energy in materials used. However, the reality of the isolated site and the approach to the labour force meant that workers from both Alldays (60km away) and Musina (70 km away) were transported in vehicles to the site daily, five days a week, for a reported period of eighteen months in the production of the tiles.

This suggests a need to holistically consider the actual energy inputs in the production of site-based materials. Additionally, multiple sources reported the actual cement usage was nearly double the 5% design content of the tiles to reduce breakage caused by the short transportation across the site.<sup>350</sup>

Finally, the retrofitting of air-conditioning undermined the sustainability aims of the project. Amidst the wide praise the project has received architecturally one critique of the project emerged concerning the suitability of the form to the exhibitions it was designed to house. Most of the international awards the project received were garnered nearly three years before the official opening of the building with completed exhibitions. The exhibition design to house the highly valued historic artefacts was a contentious element of the project that came last.<sup>351</sup> Challenges were ongoing to acquire approval to house climate sensitive and valuable archaeological materials. In this regard the unconventional nature of the architecture may have worked against the long term

---

<sup>349</sup> Fairs, *Mapungubwe Interpretation Centre by Peter Rich Architects*.

<sup>350</sup> Fitchett, ; Prinsloo, *Interview by Author Via Skype*.

*From Fitchett PhD: "The soil conditions at Mapungubwe are not ideal for stabilised earth building as the clay content is extremely low. For this reason, a relatively high cement content of 10% was required."*

<sup>351</sup> Duggan, *Interview by Author*; Rich, *Interview by Author*.

potential to exhibit material from various collections. This lead to the retrofitting of air conditioning required to obtain key items for exhibition.

### 8.9 Additional Data

SANParks provided significant additional information that broadens the possible considerations of relevant data to collect for future projects.<sup>352</sup> One statistic that was provided but not sought was the overall professional fees for the project, including the cost of remedial work on the vaults. This figure includes the total professional costs including “Architect/structural engineer/(vault) roof engineer/quantity surveyor/display designer”. Without a more specific detailed budget it is not possible to understand these figures entirely. In a journal article the design and engineering team expressed the difficulty of innovation within projects where the payment structure does not encourage cost savings if architectural fees are based on a percentage of the total cost of construction.<sup>353</sup>

*Fee structures based on value percentages are not the correct way to encourage more professionals to take on projects that are intentionally inexpensive and often time-consuming. An alternative approach could be to base professional fees on savings from typical costs, value delivered to communities, or simply time expended.*<sup>354</sup>

This is an important consideration in future projects to weigh the financial costs of innovation in construction techniques against the labour-intensity gained. This may be particularly relevant within projects with international collaboration with economies with higher wage standards. As was revealed in the project narratives, both projects relied in different ways on foreign expertise and collaboration. Pro-bono research contributions revealed thru interviews create difficulty in calculating the actual costs of design

---

<sup>352</sup> See Appendix H.2 for additional SANParks Data.

<sup>353</sup> Ramage et al., *Design and Construction of the Mapungubwe National Park Interpretive Centre, South Africa.*

<sup>354</sup>

for this project. Nonetheless in a larger scope the building is remarkably inexpensive at approximately<sup>355</sup> R 9000/m<sup>2</sup> and could be argued to be an amazing value given both it's effectiveness as a means to generate EPWP person-days of labour and for the recognition the building has received internationally, surely a desirable outcome for an element of tourism infrastructure.

### 8.10 Evaluating Ocean View Housing

At the time of data collection over 300 new homes had been completed at Ocean View. The earliest completed homes have been occupied for almost two years. Compared to site visits to several other RDP developments the unique texture and quality of the stonework at Ocean View ennobled the small houses with a sense of craft and care in their making. In contrast to the lightweight user-built housing dominant at Mountain View, the massiveness of the stone walls seemed a fitting visual metaphor in the long quest for stability and permanence among the people living there. Despite it's decreasing application as the project developed, the stonework seemed to take on a symbolic element as described by councilperson Benedicta Van Minnen at the Key Giving ceremony:

*A project like this talks to the city's mission of redress, of restoring dignity and of ensuring that people have a stake in their community. The fact that the houses are built using table mountain sandstone from this area really reflects that this community is of this area, is part of this area.*<sup>356</sup>

Based on site visits and informal discussion there is also anecdotal evidence of pride among the many EPWP workers in the quality of the stonework and the contribution they have made to the neighborhood. Similar to MIC this handmade element of these simple houses serves to elevate their value and sense of importance.



**Figure 8.13** Ocean View Collage of New Housing and additions

<sup>355</sup> Based on SANParks reported final account cost R23,315,793.83/2573 m<sup>2</sup> see details in Appendix H.2

<sup>356</sup> Ocean View Key Turning Ceremony. Ocean View Community Building. may 28, 2015. .



**Figure 8.14** EPWP Stonemasons at Ocean View

Time will tell if the value of the RDP house as a “gift house” is cared for and whether the asset increases or decreases in real estate value. While a strong lead contractor in MHI may have been required to deliver the large scale project in a timely manner, this has meant far less user autonomy and variety in the design and layout of the houses. However, already the ingenuity and needs of residents has shown signs of quickly evolving standard housing plans to be more adaptive. See Figure 8.13. While these self-built additions may alter the visual continuity of the neighborhood they are likely to rectify the given house to the needs of the new homeowners.

*The real use-value of housing cannot be measured in terms of how well it conforms to the image of a consumer society standard. Rather, it must be measured in terms of how well the housing serves the household.<sup>357</sup>*

Site visits revealed the interiors of the homes to be very small. In hindsight, the added cost of a vaulted truss could have greatly improved the interior volume, particularly given the constrained building footprint and room sizes. At turnover the interiors of the homes were very basic unpainted concrete block walls and unfinished concrete floors.



**Figure 8.15** View of Bedroom of recently complete house.

---

<sup>357</sup> Turner, *Housing by People: Towards Autonomy in Building Environments*.

An unexpected element of the site plan at Ocean View is the enormity of the Civil Engineering site work, in particular the drainage intervention on the corner of the site. This retention pond appears to be over seven metres deep at points and is flanked by stone filled gabions. While this element preceded the architectural involvement in the project, it is an unfortunate eyesore that greets visitors and serves as the primary corner entrance to the site from major access roads. More sensitive landscape and infrastructure design could have transformed this area into an amenity.



**Figure 8.16** Panoramic View of Retention Pond

However, it would be incomplete to assess the asset creation at Ocean View without considering the inherent deficiencies of the sites central liability: it's location. As was highlighted in the World Design Capital Citation:

*Due to the area's isolation and distance from formal economic sector activities the community struggles with various social ills, which are aggravated by high levels of unemployment.*<sup>358</sup>

Site visits by various means of transportation (car, train, taxi) revealed the difficulty of accessing the site. This leaves good reason to question if a house, even a better-than-average house, can economically empower residents when it is positioned at such great distance from jobs. This is part of the lasting sting of policies that landed residents in this distant place decades earlier.

---

358



While the housing upgrade may be a welcome improvement it also may serve to permanently anchor families on the periphery far from greater job opportunities. In this context, it is even more clear the importance of including job-training as a part of the development process to increase the viability of more work in the future.

With each new addition the showpiece element of these houses, the handcrafted stone façade, is less and less visible. The architectural character of the neighborhood is rapidly evolving as homeowners realize their freedom to build. Perhaps this sacrifice is welcome as it shows new homeowners investing in making this asset more valuable to their needs. If the skills acquired by the newly trained stonemasons allows them promising job prospects in the future, despite the gradual disappearance of their work on-site the long-term affects on their livelihoods might endure.



**Figure 8.17** House at Ocean View

## **CHAPTER 9: Conclusions and Recommendations**

This thesis research was motivated by the desire to better understand the potential for design in contexts of poverty to empower others to work, to earn, and to grow in skills and knowledge. At the heart of the notion of DesignWork developed within this thesis is the recognition that design ideas of architects, expressed through drawings done for public agencies, can have significant effects on both the buildings and the lives of involved workers. DesignWork in the context of post-apartheid South Africa is uniquely shaped by the EPWP that emerged to combat the scourge of poverty and high unemployment nationwide while developing much-needed infrastructure. Uniquely, South African architects have access to the EPWP to realize economic empowerment of community members in close proximity to job sites. This understanding led to the formation of the central research question of this thesis:

***How is the Expanded Public Works Programme structured to work within architectural projects and what is the role of design in achieving programme goals?***

Evaluation of the structure of the EPWP within government in Chapter 4 revealed the complexity of the programme and key variables that affect its implementation. Chief among these variables is the ambition within the public agencies that serve as the hands and feet to implement the EPWP methodology. In both cases of this thesis it was the creativity and drive of government managers that initiated a call to architects as collaborators to achieve the EPWP goals. The architects interviewed revealed limited understanding of the programme with government managers emerging as the central link between architects and the EPWP.

It should be recognized by architects that government agencies implementing the EPWP methodology *depend* on the development

of productive work opportunities as a means of delivering income relief to the poorest of the poor. If designs can enable well-coordinated job opportunities and training within projects, these assist agencies in fulfilling their mandate to implement the EPWP methodology.

In the economic context of South Africa with so many on the edge of the food poverty line, design decisions that enable greater use of the EPWP can literally add bread on the table for impoverished community members employed. Architects are therefore challenged to be creative allies of these communities, though they may have very limited direct interaction with the EPWP beneficiaries downstream from their designs.

Assessment of projects according the three goals of income relief, skills development, and asset creation in this thesis sought to identify measurable outcomes of DesignWork within the EPWP.

A few key lessons emerged:

**LESSON #1: *Make Building Construction More Labour-Intensive by Designing for Localised Material Production***

Architects should recognize from the outset of projects that designing for localised material production<sup>359</sup> offers the single greatest potential to increase income relief to beneficiaries through the EPWP. As the EPWP literature emphasised, most building

---

<sup>359</sup> To add clarity the words “materials manufacturing” have been replaced with “material production”, this allows for the refinement of site based elements such as stone and soil compressed into earthen tiles to be referenced without implying more technical, often larger scale production arrangements.

*Production:* the action of making or manufacturing from components or raw materials, or the process of being so manufactured.

*Manufacturing:* the making of articles on a large scale using machinery.

This thesis demonstrated the use of free and site based resources, soil at Mapungubwe that was processed to make over 200,000 compressed tiles for vaults, and stone at Ocean View that was quarried and dressed for the facades of the 543 houses.



construction processes are inherently labour-intensive, therefore in order to create a meaningful increase in labour-intensity project teams must be creative. In both projects this creativity was focused on the imaginative use of freely available site based resources; soil and stones.

A key example can be found at MIC, where the design hinged on the abundant use of tiles the project team chose to manufacture on-site rather than purchase from a regional manufacturer. This single decision resulted in over 28,000 person-days of EPWP work.

However, localised materials production can occur with or without high levels of technological innovation. More important is a commitment to developing management structures to realize this goal. Ocean View, though lauded for its use of stone, revealed a predominant reliance on conventional materials procured from industrial manufacturers. By contrast, projects examined in the literature review such as the Victoria Mxenge Housing and the Grameen Housing utilized similar traditional building elements (trusses, concrete, blocks, roof tiles) produced on-site by tightly knit communities. While innovation in architectural forms can be achieved by inward looking architectural teams, innovation in social relations will require close coordination between local communities and professional project teams.

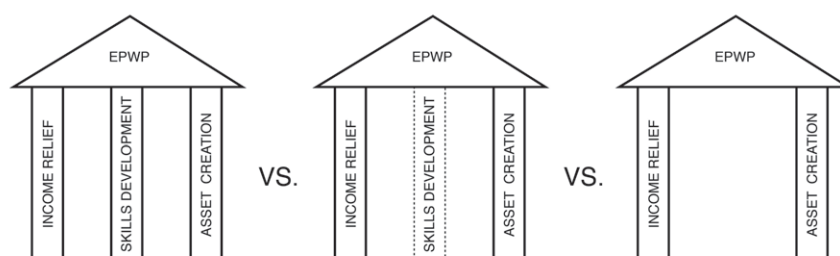
A critical strategy evidenced at MIC was the development of six new SMME's to manage the strictly defined goal of tile manufacturing in advance of the general construction. This simplified the project for the lead contractor while allowing materials development on-site. This need for tile manufacturing on site emerged from extensive research and development of the novel construction system within the project. However, this same project structure could be implemented utilizing more conventional building technologies.

By design the EPWP brings inexperienced workers onto the jobsite. This increased in labour must be thoughtfully managed.

Both EPWP projects had difficult tryout periods to identify reliable workers. This should come as no surprise and future project teams should consider using early phases of high-labour-intensity work (foundations/civils<sup>360</sup>) as a tryout period to evaluate the newly employed workers according to reliability, aptitude and ambition.

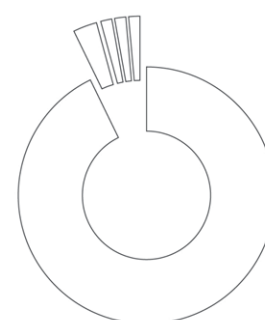
EPWP contract duration emerged as a key issue both for the continuity of work on site and sustained income relief for beneficiaries. Those enrolled in training programmes also can benefit from longer-term contracts, though this must always be balanced with the need to maximise participation. Negotiating the conditions of EPWP employment is an important role of the government agency. Some projects are designed to maximise work opportunities for the most beneficiaries, while other project favour sustained employment for a smaller group of people.

**LESSON 2.** *Design for economic empowerment by choosing appropriate technologies to align with certifiable skills training, adoptable techniques, and to encourage the development of SMME's.*



**Figure 9.1** The Spectrum of EPWP Programme Goals

This study has revealed that while training is a policy goal of the EPWP it is currently expendable within projects. There are serious questions whether there are sufficient resources to make training a viable component of the EPWP. While OV was particularly successful in locating funding to enable the extensive training of stonemasons on site, less than 5% of those enrolled in the EPWP exited the programme with any form of certification.



**Figure 9.2**  
Ring Diagramme of Training

<sup>360</sup> Anne Fitchett, "Employment Creation in Building," *IMIESA* 34, no. 6 (2009a), 58-69.

This thesis contends that certified skills development training for select workers should be of paramount importance. The EPWP must be differentiated from low-pay construction work, and the investment in workers through training makes the difference. Certified training emerges as the most important benefit beyond the purposefully low wages of the programme. As was revealed at OV, the confidence built and sense of value of each person in a proper training programme is significant.

*It should be about empowerment. You empower with qualifying skills.<sup>361</sup>*

Training is centrally concerned with skills development among workers, not with production. The six-month stonemasonry training at OV was exceptional in giving workers a solid foundation both in the theoretical and practical elements of their new trade in advance of the stressful production required for the project. The stonemasonry experience of the site architect uniquely afforded the opportunity for the architect to be a trainer of stonemasons and to design houses that served pedagogical goals.

In the case of Mapungubwe, both of the central activities of tile manufacturing and vault building were linked to a highly engineered structural system chosen by the design team and perceived by SANParks as having limited future application. From this context MIC did reveal the strategy of equipping SMME's capable of managing teams on site as a step towards longer-term sustainability of employees able to tender for future work. As flexible team leaders these individuals could tender for a variety of future general construction work in the park and employ others.

Even in the absence of formal skills training this thesis revealed that exposure to employers can nonetheless position hard-working individuals to be offered longer-term jobs beyond the project. SANParks, USNA, MHI and the City of Cape Town all reported

---

<sup>361</sup> Sauls, *Interview by Author*.

further hiring or intention to hire former EPWP workers or SMME's developed through the EPWP.

***LESSON 3. The importance of architectural design should be recognized by the EPWP.***

The Department of Public Works should recognize the unique and creative role architects can play in achieving the EPWP goals. Three areas emerge to bridge the current gap between architects and the EPWP:

**Educate**

First, the EPWP must make efforts to clarify its goals and processes. This thesis has revealed the difficulty, as an architect, to come to a thorough understanding of the programme. The development of clear and easily understandable online information or straightforward continuing education materials for architects would better direct the creativity of architects in this context. It is also incumbent upon architects working in areas of poverty as a professional duty to educate themselves concerning the EPWP. This should include surveying the strategies to implement appropriate labour-intensive building technologies and to understand the context of their work and EPWP beneficiary training as well as the precedent of other approaches. This thesis seeks to provoke the thinking of architects in this regard.

**Recognize**

Additionally, the outcomes of DesignWork should be recognized and analysed. While areas of labour-intensive construction centred on Civil Engineering have been the focus of extensive research, the importance of building design and construction are under-researched.

Competition could provoke improved performance, and this thesis present two projects that set a high bar. The Kamoso Awards, hosted annually to celebrate the best of EPWP implementation, could be expanded to have a new award to recognize excellence in EPWP building construction. In this way, both architects and

project teams who advance the possibilities of the EPWP might be celebrated for their creative contributions.

### **Raise the Bar**

DesignWork should, in the future, strive to achieve particular levels of labour-intensity and skills training throughputs and consider how design proposals can best enable these goals. Just as there is an expectation of the quality of the building to be created early in a project through drawings, models, and renderings, so too there should be EPWP goals clearly set within each project for the achievement of EPWP goals of income relief and training. Developing appropriate designs and project management structure to achieve these goals is the creative work of each project team, including architects, builders, government agency staff, and community leaders. What if projects achieving design excellence were not seen as interesting exceptions but the expectation of buildings projects utilizing the EPWP?

The legacy of the New Deal is aspirational in this regard. This programme prioritized excellence in architecture and design and encouraged creative contributions, leaving a built legacy that is celebrated over eighty years later. With the EPWP expected to continue for years to come, the time is now to consider the built legacy of this programme. If the value of innovative labour-intensive architecture can be cultivate beyond just employment statistics, future generations of South Africans might one day look back with pride at the assets created by this programme.

### **Recommendations**

In addition to the lessons above, this research suggests the following areas for future research:

#### **Global Comparative Study**

As shown in the Literature Review, the EPWP is one among many international Public Works Programmes. A comparative study to look at select global PWP's and their role in the making of architecture could be informative and provoke shared learning from

various resource-constrained contexts. Additionally, further research of exceptional international cases could lead to a rich understanding of the territory of DesignWork as a broad phenomenon. Many examples cited in *Afritecture*<sup>362</sup> are ripe to consider. For example, a cursory review of the available documentation on the Butaro Hospital by MASS Design Group<sup>363</sup> reveals amazing levels of labour-intensity, including some 12,000 job opportunities in the creation of a 6000 m<sup>2</sup> hospital.<sup>364</sup> Research into this and other projects may help to differentiate site-specific design solutions and management structures from more generic ideas applicable to a broad spectrum of DesignWork.

### **Further Analysis of EPWP Goals within Housing Development**

The identification within this thesis of the extensive use of the EPWP in housing developments across the country could pave the way for a more focused survey of the key variables of income relief (person-days/m<sup>2</sup>) and certified training outcomes to understand the programmes effectiveness in achieving these goals in housing development. Including in this research a budget analysis of each project could help assess the value of beneficiary training and its costs.

Additionally, the structures for site based material production of the construction components in housing development should be explored. This should include revisiting the extensive foundational research concerning site-based material production by early authors of the EPWP and could shed light on problems that emerged at OV concerning how labour-intensive architectural innovations can become new NQF Unit Standards.

---

<sup>362</sup> See Appendix B.5 for Economic Empowerment Excerpts from *Afritecture*

<sup>363</sup> In the Appendix to *Empowering Architecture* a few amazing figures are revealed. For the Butaro Hospital 6040 square metre project with a budget of \$4.4millionUS, yielding a similar cost/m<sup>2</sup> to the Mapungubwe Interpretive Centre although approximately twice the overall size. For this project, a reported 12,000 short term unskilled jobs were created distributing \$500,000 to beneficiaries while nearly 3900 skilled craftspeople were reported to be employed and received training on the job. By comparison to either of the projects of this study these numbers are remarkable. This project was done seemingly in the absence of any PWP.

<sup>364</sup> Murphy and Ricks, *Empowering Architecture: The Butaro Hospital, Rwanda*.

### **Tracer Study of Ocean View Stonemasons**

As was revealed in the Literature Review, despite the vast implementation of the EPWP there is a dearth of tracer studies to evaluate longer-term benefits of the programme. The Ocean View stonemasons present a unique group of artisanal trainees equipped through the development process with a seemingly marketable skill. With construction completion anticipated in the months ahead, a follow up study on the work outcomes for this training group could increase understanding of work opportunities once the EPWP is complete. Documenting the challenges of a cohort exiting the EPWP and entering the open market could reveal what skills are most useful and areas to include in future training agendas.

### **Closing Thoughts**

This thesis has examined two projects to better understand the complex links between architectural design and the goals of the EPWP. Continued assessment of the EPWP in architectural projects can yield a rich understanding for developing a South African architecture well suited to its context and expanding the impact of architecture beyond the building. This research has also shown the unique lineage of each project, building on a variety of experiences by the professionals and communities involved. As two early exemplars each project battled with unknowns, however future projects should learn from these examples and develop more informed approaches. With the EPWP slated to continue for decades to come, future opportunities for DesignWork abound. Whether project teams will advance the innovative ideas and social structures found in these two projects remains to be seen.

## Bibliography

- Adato, M. and L. Haddad. "Targeting Poverty through Community-Based Public Works Programmes: Experience from South Africa." *The Journal of Development Studies* 38, no. 3 (02/01; 2015/05, 2002): 1-36.
- Andersson, Camilla, Alemu Mekonnen, and Jesper Stage. "Impacts of the Productive Safety Net Program in Ethiopia on Livestock and Tree Holdings of Rural Households." *Journal of Development Economics* 94, no. 1 (2011): 119-126.
- Auer, Peter and Janine Leschke. *Active Labour Market Policies Around the World: Coping with the Consequences of Globalization*. Geneva: International Labour Organization, 2005.
- Bellamy, James. *Interview by Author Via Skype*. New Zealand: 2015.
- Berry, Al, Magali von Blottnitz, Rashad Cassim, Anna Kesper, Bala Rajaratnam, and Dirk Ernst van Seventer. "The Economics of SMMES in South Africa." *Trade and Industrial Policy Strategies, Johannesburg, South Africa* (2002).
- Bruwer, Etienne. *Stonemasonry Training Orientation*, edited by Anton Souza de Costa 2013.
- Bruwer, Etienne. *Interview by Author*. Constantia: 2015.
- Carolus, Clifton. *Interview by Author*. Cape Town: 2015.
- CIDB. *Labour-Based Methods and Technologies for Employment-Intensive Construction Works*. Pretoria: CIDB, 2005.
- City of Cape Town. *Call for Proposal from Architects. Department of Human Settlements. 15 March 2012.*, 2012.
- Constable, Mary Anne. "Ocean View: A New Hope for Future." *Urban Green File - 0044* 2015, no. 8/17/2015 (2013): 42-43, 44, 45.
- Crafford, Abre. *Interview by Author*. Crafford and Crafford Architects Office. Pretoria: 2015.
- Dar, Amit and Zafiris Tzannatos. *Active Labor Market Programs: A Review of the Evidence from Evaluations*. Washington D.C.: Social Protection, World Bank, 1999.



De Bruin, Louw. *Interview by Author*. Mapungubwe National Park: 2015.

DEA. *Department of Environmental Affairs. Strategic Plan 2013-2018.*: Republic of South Africa, 2013.

Dejardin, Amelita King. *Public Works Programmes, a Strategy for Poverty Alleviation: The Gender Dimension* International Labour Office, Development and Technical Cooperation Department, 1996.

del Ninno, Carlo, Kalanidhi Subbarao, and Annamaria Milazzo. "How to make Public Works Work: A Review of the Experiences." *Social Protection and Labor. World Bank*. no. NO. 0905 (May 2009).

DeVilliers, Theo. *Interview by Author*. Ocean View: 2015.

DHS. "National Housing Code. Department of Human Settlement. South Africa." (2009).

———. "People's Housing Process. National Department of Human Settlement." , accessed 8/23/2015, 2015, <http://www.dhs.gov.za/content/peoples-housing-process>.

DPW. "Department of Public Works: EPWP Phase II Training Framework." (March 2012, 2012).

———. *EPWP Five Years Report 2004-2009*. Pretoria: Department of Public Works, 2010.

———. "EPWP Grant Manual 2014/2015. Version 6." Department of Public Works, accessed 3/24/2016, 2016, [http://www.epwp.gov.za/documents/Infrastructure/Infrastructure\\_incentive\\_manual/EPWP\\_Integrated\\_Grant\\_Manual2014\\_15Version\\_6April2014.pdf](http://www.epwp.gov.za/documents/Infrastructure/Infrastructure_incentive_manual/EPWP_Integrated_Grant_Manual2014_15Version_6April2014.pdf).

———. "EPWP: Institutional Arrangement." Department of Public Works, accessed 3/24/2016, 2016, [http://www.epwp.gov.za/about\\_institutional\\_arrangement.html](http://www.epwp.gov.za/about_institutional_arrangement.html).

———. *Framework for Monitoring and Evaluation of the Expanded Public Works Programme* 2005.

*Guidelines for the Implementation of Labour-Intensive Infrastructure Projects Under the Expanded Public Works Programme*, Public Law 3rd Edition, (2015): .

- . "Public Works on Wage Boost for EPWP Participants. South African Government." , accessed 3/24/2016, 2016, <http://www.gov.za/speeches/public-works-wage-boost-epwp-participants-1-nov-2015-0000>.
- Duggan, Jo-Anne. *Interview by Author*. University of Cape Town: 2015.
- EPWP. *2014/2015 Quarterly Reporting Document. Excel Spreadsheet.*: Department of Public Works, 2015.
- . *Consolidated Programme Overview and Logical Framework*. Version 6 ed. 2004.
- Ermentrout, Robert Allen. *Forgotten Men: The Civilian Conservation Corps*. New York: Exposition Press, 1982.
- Fagan, Gabriel. "Mapungubwe Interpretation Centre by Peter Rich Architects." *Architectural Review* 2015, no. 9/5/2015 (February, 2010).
- Fagan, Henry. *Interview by Author*. Cape Town: 2015.
- Fairs, Marcus. "Mapungubwe Interpretation Centre by Peter Rich Architects." *Dezeen* (2009).
- Fathy, Hassan. *Architecture for the Poor: An Experiment in Rural Egypt* [Gourna : a tale of two villages]. Chicago: University of Chicago Press, 1973.
- Fitchett, Anne. "Employment Creation in Building." *IMIESA* 34, no. 6 (2009a): 58-69.
- . *Interview by Author*. University of the Witwatersrand: 2015.
- Fitchett, Anne Susan. *Skills Development and Employment Creation through Small Public Buildings in South Africa* (2009b).
- . *Skills Development and Employment Creation through Small Public Buildings in South Africa* (2009c).
- Fleminger, David. *Mapungubwe Cultural Landscape*. Pinetown, South Africa: 30° South Publishers, 2008.
- Flyvbjerg, Bent. "Five Misunderstandings about Case-Study Research." *Qualitative Inquiry* 12, no. 2 (2006): 219-245.

- Freire, Paulo. *Pedagogy of the Oppressed*. London: Bloomsbury Publishing, 2000.
- Godlwana, Sandy. "Career File: Pauline Houniet." *Department of Local Government and Housing Newsletter* (March, 2006).
- Hodge, Matthew. *Interview by Author Via Skype*. Massachusetts, USA: 2015.
- Houniet, Pauline. *Interview by Author*. City of Cape Town Offices. Plumstead.: 2015.
- . *Ocean View (Mountain View) Housing Project. Presentation. 30 September 2014*.
- Huchzermeyer, Marie and Aly Karam. *Informal Settlements: A Perpetual Challenge?*. Cape Town: Juta and Company Ltd, 2006.
- IDP. *Integrated Development Planning: A Practical Guide to Municipalities* Local Government, 2010.
- indiawaterportal.org. "50% of MGNREGS Reserved for Water Conservation Work." , accessed 8/26/2015, 2015, <http://www.indiawaterportal.org/articles/50-mgnregs-reserved-water-conservation-work>.
- Ismail, Salma. *The Victoria Mxenge Housing Project: Women Building Communities through Social Activism and Informal Learning*. Cape Town: University of Cape Town Press, 2015.
- Izaks, Denise, Farrahdieba Sauls, and Sharmaine Rasdien. *Shared Interview by Author*. Ocean View: 2015.
- Jesson, Jill, Lydia Matheson, and Fiona M. Lacey. *Doing Your Literature Review: Traditional and Systematic Techniques*. London: Sage, 2011.
- Joubert, Ora. "Excerpts from Introduction to Sophia Gray Lecture. November/December Issue." *Journal of the South African Institute of Architects* (2011): 5-6.
- Kammeyer, Heinrich. *Interview by Author*. Cape Town: 2015.
- Leighninger Jr, Robert D. "Cultural Infrastructure: The Legacy of New Deal Public Space." *Journal of Architectural Education* 49, no. 4 (1996): 226-236.
- Lepik, Andres. *Afritecture: Building Social Change*. Hatje Cantz, 2014.

- Low, Iain. *Blank: Architecture, Apartheid and After. Essay: Building and Self-Reliance.*, edited by Hilton Judin, Ivan Vladislavić. Rotterdam: Nai Uitgevers Pub, 1998.
- Lyons, Michal, Carin Smuts, and Anthea Stephens. "The Changing Role of the State in Participatory Development: From the Reconstruction and Development Programme to Growth, Employment and Redistribution." *Community Development Journal* 36, no. 4 (October 01, 2001): 273-288.
- Mallion, Paul. "Vaulting Over the Building!" *Green Building Magazine* (Winter 2008): 50.
- White Paper on Reconstruction and Development*, Public Law 1954, *Government Gazette* (1994): .
- Maralack, D. and Abraham Kriel. "Area Study of Cape Town: A Streetless Wasteland: A Preliminary Report on Ocean View." (1984).
- MASS Design Group. "GHESKIO Cholera Treatment Center Video." August 26, 2015, <http://www.massdesigngroup.org/portfolio/ctc/>.
- McCord, Anna. "A Critical Evaluation of Training within the South African National Public Works Programme." *Journal of Vocational Education and Training* 57, no. 4 (2005): 563-586.
- . *Policy Expectations and Programme Reality: The Poverty Reduction and Labour Market Impact of Two Public Works Programmes in South Africa*. London: Overseas Development Institute, 2004.
- . *Social Protection Toolsheet*. London: Overseas Development Institute, 2012.
- . *A Typology for Public Works Programming*. London: ODI, 2008.
- McCutcheon, R. "The Generation of Productive Employment Opportunities for the Unskilled: Principles, Potential and Pitfalls of Labour-Intensive Construction." 2008.
- McCutcheon, Robert. "An Introduction to Employment Creation in Development and Lessons Learned from Employment Creation in Construction." *Urban Forum* 12, no. 3 (2001): 263-278.

———. . *Labour-Intensive Construction and Maintenance in Sub-Saharan Africa. A Paper for Discussion at the World Bank on the 7th April 2008.*

McCutcheon, RT and A. Fitchett. "The Critical Importance of the Hands-on Site Supervisor." Johannesburg: University of the Witwatersrand, WORK2005: Second International Conference for Employment in Development, 2005.

Meth, Charles. "Employer of Last Resort? South Africa's Expanded Public Works Programme (EPWP)." (2011).

MIT. "Sa+P Plays Key Role in 'World Building of the Year'." *PLAN* (2010).

Momberg, Eleanor. "Gundo Lashu (our Victory). International Labour Office." *World of Work* 70, no. December 2010 (2010): 42-43, 44,45,46.

Morshed, Adnan. "Building Empowerment: Female Grameen Entrepreneurs in Rural Bangladesh." *South Asia: Journal of South Asian Studies* 37, no. 4 (10/02; 2015/03, 2014): 605-624.

Moyo, Mbuso. *How Effective is EPWP Employment in Enhancing the Employability of Participants Once they Exit these Programmes? the Case of the Modimola Integrated Expanded Public Works Programme (EPWP), North West Province.* (2013).

Murphy, Michael and Alan Ricks. *Empowering Architecture: The Butaro Hospital, Rwanda.* Boston.: MASS Design Group, 2012.

National Planning Commission. *South Africa National Development Plan 2030. Executive Summary.* Pretoria, 2012.

Ncedani, Vumile. "Unemployed Youth Stand to Benefit from a Building Project." *Department of Local Government and Housing* (December, 2006): 8-9.

Ndoto, M. and I. Macun. "World Wide Fund for Nature Rapid Socio-Economic Survey of Working for Wetlands." *Unpublished Monograph.* Johannesburg: CASE (2005).

NMTT. "Niall Mellon Township Trust. LinkedIn.<br />." 2015, <https://www.linkedin.com/company/niall-mellon-township-trust>.

Ochsendorf, John. *Guastavino Vaulting: The Art of Structural Tile* Princeton Architectural Press, 2010.

Ogbeifun, Edoghogho. "Training Artisans on-Site." *Australasian Journal of Construction Economics and Building*, The 11, no. 3 (2011): 82.

Philip, Kate. *The Community Work Programme in South Africa* (2009).

———. "Inequality and Economic Marginalisation: How the Structure of the Economy Impacts on Opportunities on the Margins." *Law, Democracy & Development* 14, no. 1 (2010).

Phillips, Sean. *The Expanded Public Works Programme (EPWP): Overcoming Underdevelopment in South Africa's Second Economy*. Pretoria: Department of Public Works, 2004.

Prinsloo, Franz. *Interview by Author Via Skype*. New York City: 2015.

Ramage, MH, T. Hall, and P. Rich. "Light Earth Designs: Natural Material, Natural Structure." 2014.

Ramage, Michael H. "Catalan Vaulting in Advance Material: New Approaches to Contemporary Compressive Form." MIT, 2006.

———. *Interview by Author Via Skype*. Cambridge, England: 2015.

Ramage, Michael H., John A. Ochsendorf, and Peter Rich. "Sustainable Shells: New African Vaults Built with Soil-Cement Tiles." Editorial Universitat Politècnica de València, 2010.

Ramage, Michael H., John Ochsendorf, Peter Rich, James K. Bellamy, and Philippe Block. "Design and Construction of the Mapungubwe National Park Interpretive Centre, South Africa." *ATDF JOURNAL* 7, no. 1/2 (2010).

Rangasami, Jerushah and Anthony Gird. *Summary Report: Rapid Impact Assessment of NMTT's Work in Imizamo Yethu, Cape Town from 2003-2005*, 2007.

Rich, Peter. *Interview by Author*. Johannesburg: 2015.

Robinson, Blake. "'Resolving Urban Poverty and Ecological Sustainability have Nothing to do with One another' -a Critique." Masters, Sustainability Institute, 2009.

Ross, Fiona C. *Raw Life, New Hope: Decency, Housing and Everyday Life in a Post-Apartheid Community*. Cape Town: Juta and Company Ltd, 2010.

RSA. *20 Year Review: South Africa 1994-2014*. Pretoria: Republic of South Africa, 2014.

*Constitution of the Republic of South Africa*, Public Law 108, (1996): 26.

*National Housing Act*. (1997): .

Rybczynski, Witold. "The Bilbao Effect." *The Atlantic Monthly* 290, no. 2 (2002): 138-142.

*Client-Architect Agreement 2008*, South African Institute of Architects (2008): .

SANParks. "Brief to Architects. Mapungubwe Interpretive Centre."Pretoria.

———. . *Overview of EPWP Project in Mapungubwe National Park and World Heritage Site*. Pretoria, 2015.

———. "Social Investment Report 2012." (2012).

Sauls, Farrahdieba. *Interview by Author*. Ocean View: 2016.

Schumacher, E. F. *Small is Beautiful: A Study of Economics as if People Mattered*. New York: Harper & Row, 1973.

Simone, AbdouMaliq. *For the City Yet to Come: Changing African Life in Four Cities*. Durham, North Carolina: Duke University Press, 2004.

Spies, Andre. *Interview by Author*. Cape Town: 2015.

STATS\_SA. *Gender Statistics in South Africa 2011*. Pretoria, 2011.

Stephens, Anthea Clare. *Negotiating Boundaries: Co-Managing Natural and Urban Areas on the Cape Peninsula*: Department of Environmental and Geographical Science: University of Cape Town, 1998.

Subbarao, Kalanidhi. "Public Works as an Anti-Poverty Program: An Overview of Cross-Country Experience." *American Journal of Agricultural Economics* (1997): 678-683.

Till, Jeremy. *Architecture Depends*. Cambridge, Massachusetts: MIT press, 2009.

Turner, John FC. *Housing by People: Towards Autonomy in Building Environments*. New York: Pantheon Books, 1977.

UNESCO. "Citation Description of Mapungubwe Cultural Landscape." , accessed March 5, 2016, 2016, <http://whc.unesco.org/en/list/1099/>.

*Ocean View Key Turning Ceremony. Ocean View Community Building. may 28, 2015.*

Van Staden, Piet. *Interview by Author*. Louis Trichardt: 2015.

Van Wyk, Antionet. *Interview by Author*. SANParks Offices. Pretoria: 2015.

Watermeyer, RB and NG Band. "The Development of Small Scale Enterprises, Skills, Entrepreneurship and Employment Opportunities through the Provision of Housing." *Working Group 3*, (1994).

Windapo, Abimbola Olukemi and Keith Cattell. "The South African Construction Industry: Perceptions of Key Challenges Facing its Performance, Development and Growth." *Journal of Construction in Developing Countries* 18, no. 2 (2013): 65-79.

Worker 1, Elim. *Interview by Author*. Elim: 2015.

Worker 2, Elim. *Interview by Author*. Elim: 2015.

Yin, Robert K. *Case Study Research: Design and Methods*. USA: Sage publications, 2013.

York, Geoffrey. "The Return of the Golden Rhino." *The Globe and Mail*, accessed 10/2/2012, 2016, <http://www.theglobeandmail.com/news/world/the-return-of-the-golden-rhino/article545513/?page=all>.

Yunus, Muhammad. *Banker to the Poor*. India: Penguin Books, 2007.



## Appendix A.1: World Architecture Foundation Citation (1/2)

© 2008 - 2015 World Buildings Directory. All rights reserved.

[Back to search results](#)

### **Mapungubwe Interpretation Center**

Section: Completed

Category: Culture

Sub Category: Museums

Country: South Africa

Architect: Peter Rich Architects

WAF Year : 2009

**Award:** World Architecture Festival 2009 - World Building of the Year the Centre. This is a poverty relief project using ecological methods and materials. The complex landscape was both the inspiration for the design and the source of most of the materials for its construction. This resulted in a composition of structures that are authentically rooted to their location. The equilateral triangle provides the primary ordering, set out from a line running parallel to the contours. Secondary elements are fixed in position by this geometrical system, significant because of its reference to triangular motifs etched on stones uncovered on Mapungubwe Hill. The heart of the Interpretation centre is visually contained by two hollow cairns that evoke the route-markers found in Southern African cultures. Timbrel vaulting is used to construct the billowing forms that expose the arched edges of their thin shells, an analogy of the archaeological revelation of past cultures. The domical language is contrasted by the delicate walkways that create a zigzagging ramped route through the complex. The visitor's first view, across a seasonal stream, is of the principal vaults springing directly from the land on robust buttresses. Volumes

are linked by terraced seating, contrasting the structured horizontality of the contours with the diaphanous domes and arches. The surfacing of all of the masonry in local rubble stone creates a timeless quality. It is as if they had erupted from the earth in a geological event similar to that which created the mesas of the site and Mapungubwe Hill, representing the sunset and housing the golden rhinoceros that has become a Southern African icon. Visitors have a choice of route: ramp and stair, internal and external, to move into the upper parts of the vaults and appreciate the privileged view of the lower volume, as did the ancestors from their elevated position on the plateau of the Hill. The route continues outside the covered spaces, leading to the highest part of the site and affording a view across a flat expanse to Mapungubwe Hill in the distance, with its backdrop of the Limpopo. The project's agenda extends beyond the presentation of ancient and more recent history of the area to awaken an understanding of the vulnerability of the local ecology. These objectives are manifested in the construction process of the Centre in which unemployed local people were trained in the manufacture of stabilised earth tiles and in building the timbrel vaults. This knowledge has been accepted into the culture of the region, with the masons continuing the skills they have learned by using the remaining tiles for their houses in nearby villages. Thus, the Centre not only tells a story, but has become part of a story that is still unfolding, of culture developing in symbiosis with its natural legacy.

## Appendix A.1: World Architecture Foundation Citation (2/2)

**Lead Architect**

Peter Rich Architects  
Johannesburg  
South Africa

**Professional Credits:**

**Client / Developer**

SANParks with Department of  
Environment and Tourism funding  
South Africa

**Main Contractor**

Ousnqa Builders  
South Africa

**Poverty relief consultant**

Lineo Lerotholi

**Labour-intensive consultant**

Dr. Anne Fitchett  
South Africa

**Structural Engineer**

Henry Fagan & Partners  
South Africa

**Vaulting contractor**

Mr James Bellamy  
New Zealand

**Materials engineer**

Mr Matthew Hodge  
United States of America

**Vaulting Engineer**

Dr Michael Ramage  
United States of America

**Vaulting Engineer**

Prof John Ochsendorf  
United States of America

## Appendix B.1: Active Labour Programmes Table

**Table 6.2**  
**Overview of Active Labor Programs**

Program	Appear to Help	Comments
1. Public Works Programs/Public Service Employment (13 evaluations)	Severely disadvantaged groups in providing temporary employment and a safety net.	Long-term employment prospects not helped; program participants are less likely to be employed in a normal job and earn less than do individuals in the control group. Not a cost-effective instrument if objective is to get people into gainful employment after program completion.
2. Job-search assistance/Employment Services (18 evaluations)	Adult unemployed generally when economic conditions are improving; women may benefit more.	Relatively more cost-effective than other labor market interventions (e.g. training) - mainly due to the lower cost, youth do not benefit usually. Difficulty lies in deciding who needs help in order to minimize deadweight loss.
3. Training of long-term unemployed (23 evaluations)	Women and other disadvantaged groups generally when economy is improving.	These programs are no more effective than job-search assistance in increasing re-employment probabilities and post-intervention earnings and are 2-4 times more costly. However, job search assistance may not be a direct substitute as it may cater to a different groups of the unemployed.
4. Retraining in the case of mass layoffs (11 evaluations)	Little positive impact - mainly when economy is doing better.	These programs are no more effective than job-search assistance and significantly more expensive. Rate of return on these programs usually negative. However, job search assistance may not be a direct substitute as it may cater to a different groups of the unemployed.
5. Training for youth (7 evaluations)	No positive impact.	Employment/earnings prospects not improved as a result of going through the training. Taking costs into account - the real rate of return of these programs both in the short as well as the long run is negative.
6. Micro-enterprise Development Programs (13 evaluations)	Relatively older groups, the more educated.	Very low take-up rate among unemployed. Significant failure rate of small businesses. High deadweight and displacement effects. High costs - cost-benefit analysis rarely conducted but sometime show overall costs to UI budget higher than that of the control group.
7. Employment/Wage subsidies (15 evaluations)	Long-term unemployed in providing an entry into the labor force. However, no long-term impact.	Extremely high deadweight and substitution effects. Impact analysis shows treatment group does not do well as compared to control. Sometimes used by firms as a permanent subsidy program.

Source: *Active Labour Market Programs: A Review of Evidence and Evaluations*. Dar and Tzannatos. 1999.

## Appendix B.2: Global PWP List

**Appendix 3: Public Works programs, by Region, starting year, objective and targeting method.**

Country, Program	Region	Starting Year	objective	targeting
Afghanistan, Labor Intensive Works Programme (LIWP)	SAR	2002	anti-poverty	combination
Algeria, l'Indemnité pour Activité d'Intérêt Général (IAIG)	MNA	1994	1-time shock	self targeting
Argentina, Jefes & Jefas	LCR	2002	1-time shock	combination
Argentina, Trabajar	LCR	1996	1-time shock	combination
Bangladesh, Food for work	SAR	1974	seasonal	self targeting
Bangladesh, Rural Maintenance Program	SAR	1983	bridge to self empl	other
Bolivia, PLANE (Red de Protección Social) (RPS))	LCR	end of 2001	1-time shock	combination
Botswana, Labour Intensive Public Works Project (LIPWP)	AFR	1978	seasonal	self targeting
Bulgaria, From Social Assistance toward Employment	ECA	2002	almp	other
Cape Verde, Frente de Alta Intensidade de Mão de Obra (FAIMO)	AFR	early 1980s	seasonal	self targeting
Chile, Direct Employment Programme	LCR	from 1993	1-time shock	other
Colombia, Empleo en Acción (Red de Apoyo Social)	LCR	2001	1-time shock	other
Egypt, PWP (SF for development project)	MNA	1993	anti-poverty	other
Ethiopia, Ethiopian Productive Safety Net Programme (PSNP)	AFR	2005	anti-poverty	other
India, Jawahar Rozgar Yojana JRY	SAR	1989	anti-poverty	other
India, Maharashtra Employment Guarantee Scheme	SAR	1979	guarantee	self targeting
India, NREGA	SAR	2005	guarantee	Self targeting
Indonesia, Padat Karya (labor creation program)	EAP	1998	1-time shock	combination
Indonesia, Mercy Corps' CFW programme	EAP	2005	1-time shock	other
Korea (Republic of), Public Work Projects	EAP	1998	1-time shock	other
Madagascar, HIMO (FID)	AFR	2000	seasonal	other
Malawi, Malawi Social Action Fund (MASAF) Public Works	AFR	1995	anti-poverty	Combination
Malawi, Region Infrastructure Maintenance Programme (CRIMP)	AFR	1999	bridge to self empl	other
Mexico, Programa de Empleo Temporal (PET)	LCR	1995	1-time shock	other
Morocco, Promotion Nationale	MNA	1961	anti-poverty	combination
Pakistan, Income Generating Project for Refugee Areas (IGPRA)	SAR	1984	anti-poverty	combination
Peru, "A Trabajar Rural"	LCR	2002	1-time shock	combination
Peru, "A Trabajar Urbano"	LCR	2002	1-time shock	combination
Poland, PW	ECA	1992	almp	other
Slovenia, PW	ECA	early 1990s	almp	other
Somalia, Action Contre la Faim (ACF)'s cash for work	AFR	2004	seasonal	other
South Africa, Expanded Public Works Program (EPWP)	AFR	2004	anti-poverty	combination
Tanzania, TASAF Public Works Programme Component	AFR	2000	seasonal	combination
Thailand, SIP (first channel)	EAP	1998	1-time shock	combination
Uruguay, Programa de Actividades Comunitarias	LCR	2003	1-time shock	combination
Yemen, (Republic of), Public Works Programs	MNA	1996	1-time shock	combination
Zambia, Public Works	AFR	2002	anti-poverty	combination

Source: *How to Make Public Works Work*. del Ninno et.al. 2009.

## Appendix B.3: Hassan Fathy Records of Works

## 206 Appendix I

(b) Water for mortar mixing =  $\frac{1}{3}$  total expenses of running the pump. (See item of water in brick making expenses.) =  $\frac{97}{3} = 32\frac{1}{3}$

Average number of teams working: 15

$\therefore$  Cost of water per one team =  $\frac{32.5}{15} = 2$  PT.

Maximum number of teams working on the project was 30 and minimum 10; the average is calculated as 15 instead of 20 because the periods in which the work was going slowly were much longer than those in which it was going at a high rate. Economy would dictate that the rate should not be less than a certain amount to be determined by the following factors:

1. The sum allotted in the budget to the project in the financial year and its balanced distribution over the working months. (The working period was supposed to be 10 months, the heat in July and August being intolerable—80°C in the sun. Actually a working period did not exceed four months due to delays of routine and somnolence of officials in the administration section.)
2. The maximum possible capacity in producing building materials, especially bricks and stones, and the availability of tools and equipment.
3. The rate of transportation of building materials with the existing means; trucks, rail trolleys, camels, donkeys, etc.

For example, there were 4 trucks in the project; 2 used for the transportation of stone and the other 2 for the transportation of sand and earth.

Each truck transported 20 m<sup>3</sup> per day.

The two working in the transportation of stone could supply 40 m<sup>3</sup>.

$\therefore$  The maximum output in masonry for foundations will be 40 m<sup>3</sup> per day, unless some stone is stored in advance. So here transport capacity is the limiting factor.

#### Mortar

Mortar for the rubble masonry of the foundations was composed of earth and sand in the proportions of 2:1. One m<sup>3</sup> of rubble masonry required 0.20 m<sup>3</sup> mortar. Cost of mortar = cost of sand and water only as the earth was taken from the excavation of the foundations.

1 m<sup>3</sup> sand + 2 m<sup>3</sup> earth gave 2.5 m<sup>3</sup> of mortar.

Cost of sand = 20 PT.

$\therefore$  Cost of mortar per 1 m<sup>3</sup> of rubble masonry =  $\frac{20}{2.5 \times 5} = 1.6$  PT.

Total cost of rubble masonry for foundations will become:

## 207 Appendix I

Workmanship and labor 157 PT  
General expenses 3

Total for 8 m<sup>3</sup> 160 PT

$\therefore$  Cost of workmanship + general expenses per 1 m<sup>3</sup> =  $\frac{160}{8} = 20.0$  PT

Cost of mortar per m<sup>3</sup> 3.5

Cost of stone per m<sup>3</sup> 50.0

Total cost of rubble masonry for foundations more than 0.7 73.5 PT

#### Cost of Rubble Masonry Less than 0.70 m. Width.

Item	Labor and Materials	No.	Wage PT	Total PT	Daily Output	Cost per 1 m <sup>3</sup>	Remarks
1	Mason	2	40	80	4 m <sup>3</sup>	20.0	
2	Workman	2	10	20		5.0	
3	Helper (boy)	2	8	16		4.0	For transp. of mortar
4	Workman mixing mortar	$\frac{1}{2}$	15	7.5		2.0	One for each 2 teams
5	Trainee (youth)	1	10	10		2.5	
6	Foreman	$\frac{1}{10}$	10	1		0.25	For 10 teams
7	Water					2.00	
8	Stone					50.00	
9	Mortar					3.5	
89.25 PT say 90 PT							

#### Cost of Masonry in Stabilized Sun-dried Bricks above D.P.C. up to the Level of Windowsills (1.20 above Ground Level of the Floor).


Item	Labor	No.	Wage PT	Total PT	Daily Output	Cost per 1 m <sup>3</sup>	Remarks
1	Mason	2	40	80			
2	Workman	2	10	20			To handle bricks
3	Helper (youth)	2	8	16			
4	Trainee	1	10	10			
5	Light rly. foreman and workman	$\frac{1}{15}$	20	$\frac{20}{15} = 1.3$			Workman to lay the rails
6	Workmen for transp. of bricks	2	10	20			
7	Water						
8	Workman mixing mortar	$\frac{1}{2}$	10	5			
154.3 6 m <sup>3</sup> 26 PT							

Source: *Architecture For the Poor*




## Appendix B.4: PublicInterestDesign.org Book List

### FURTHER READING




- Learning by Building by William Carpenter
- University-Community Design Partnerships edited by Jason Pearson
- The Rural Studio by Andrea Oppenheimer Dean
- Proceed and Be Bold by Andrea Oppenheimer Dean
- Design Like You Give A Damn edited by Kate Stohr and Cameron Sinclair
- Expanding Architecture by Bryan Bell and Katie Wakeford
- Out of Poverty by Paul Polak
- Design Revolution by Emily Pilloton
- The L!brary Book edited by Anooradha Iyer Siddiqi
- The Power of Pro Bono by John Cary and Public Architecture
- Beyond Shelter edited by Marie Aquilino
- Bridging The Gap edited by Georgia Bizios and Katie Wakeford
- Design Like You Give a Damn [2] edited by Cameron Sinclair and Kate Stohr

Presented by  in collaboration with:

COLLEGE OF DESIGN  
UNIVERSITY OF MINNESOTA

**PUBLICINTEREST**DESIGN

 **Tandus**  
FLOORING

Research by John Cary  
Design by Megan Jett

## **Appendix B.5: Economic Empowerment Excerpts from Afritecture (Page 1/3)**

### **Butaro Hospital.** Mass Design Group. Rwanda

*“A deliberate choice was made to execute much of the work by hand using temporary labourers from the surrounding villages rather than transporting heavy machinery to the site, which is difficult to access.”*

*“By promoting the acquisition of practical skills, the use of local labour forces had a sustained impact as well. The stonemasons in particular-who learned how to work with the local basalt-have meanwhile been in demand for other projects as well.”*

### **Women’s Opportunity Centre.** Sharon Davis Design, Rwanda.

*“The walls were produced by a community effort on the part of the women prior to construction; in a workshop organized by the Working for Women International, the used hand presses to produce 500,000 bricks, which they later masoned as a team. This allowed users to acquire a profitable skill while constructing their own centre and, moreover, led to lower building costs.” (pg 237 Women’s Opportunity Centre)*

### **CS Studio.** South Africa.

*“The promotion of local materials and conventional construction techniques has increased the engagement of residents in the implementation of such projects, thereby encouraging the acquisition of new skills in construction, management, and negotiation within the respective communities.”*

### **Education Facilities and Rehabilitation Centre.** Emilio and Matteo Caravetti. Mali and Burkina Faso

*“Especially important to the Caravettis are the use of materials from the immediate vicinity-such as mud bricks produces on site-the incorporation of local traditions, the training of skilled craftsman, the transfer of newly acquired knowledge, and the development of easily replicable prototypes.” Pg 23*

### **Ahmed Baba Institute.** DHK and twothink architects. Mali.

*“The project maintains the vernacular mud-context, and the design drew on the important societal role of the mason by enlisting the expertise of a particular local mason, who blended mud and concrete to create a façade material that was a once consistent with the local fabric and yet also rain repellent. Mud bricks were purchased from local craftsmen.” (pg 29)*

### **Education Facilities and Women’s Centre.** Diébédo Francis Kéré. Burkino Faso

*“His aim is to mobilize the local village population for construction; link traditional building methods with new, resource-saving technologies; and train unskilled village inhabitants so that they become sought-after craftsmen.” (pg 35)*

### **Habitat Research and Development Centre.** Nina Maritz. Namibia

*“All materials are ecologically sensitive, inexpensive, and almost entirely local and renewable. Particularly noteworthy elements include test-cube paving, calcrete masonry blocks, sandbag walls, invasive timber pole screens, stabilized solid blocks, wool insulation, reed ceiling, and tire retaining walls, all replicable with unskilled labour.” Pg 43.*

Appendix B.5: Economic Empowerment Excerpts from Afritecture (Page 2/3)

**My Home, My Bed, My Mango Tree.** Baerbel Muelle. Ghana.

*“Mud bricks served as the building material, which were produced with stationary machinery and finally plastered with clay mortar. The integration and training of local labour forces was intended to strengthen the local economy.”*

**Mapungubwe Interpretive Centre.** Peter Rich Architects. South Africa.

*“Since the province of Limpopo is among the most poorly developed in South Africa, a region where high unemployment can be attributed to the prevailing low level of education, the government inaugurated an education and work programme as part of the planned building measures.”*

*“Exclusively earthenware bricks were manufactured using a handpress, which could be operated without difficulty by local labourers. Within one year, workers dug out local clay and pressed it into 40,000 thin panels, which were then assembled into vaults using simple scaffolding. Over the course of eight months, sixty individuals were trained in brick manufacturing techniques, and more than 100 received instruction in vault construction. This not only made it possible to produce building materials on site, but also generated employment opportunities.”*

**Central Market.** Laurent Séchaud. Burkina Faso.

*“The vaulted ceilings, arches, walls and floors were constructed from bricks made of pressed arch and produced by local companies, craftsmen, and workers.”*

**Appendix B.5: Economic Empowerment Excerpts from Afritecture (Page 3/3)**

*“The market halls incorporated Nubian type of vaulted ceiling, which had been tested by Burkinian construction companies in previous building projects, primarily in the construction of the market in Ouahigouya, which also had been financed by the DEZA. These firms taught the technique to local workers.”*

**Ethiopia Projects.** BLOCK + ETH. Ethiopia

*“In Ethiopia this vaulting construction was first implemented under the supervision of Professor Philippe Block, whose research at the ETH Zurich deals with this topic, and with local workers specifically trained in this technique”*

**Vele Secondary School.** East coast ARCHITECTS. South Africa.

*“Besides facilitating the participation of various partners in the design process and exchanging information and views, these multi-day meetings, thirty-five in all, often accompanied by dance performances, -cultivated the working relationships required for such a project. This personal contact allowed the construction firm to recruit skilled and semiskilled building personnel from the four communities.”*



Appendix B.5: Economic Empowerment Excerpts from Afritecture (Page 3/3)

**Design Indaba 10x10 Sandbag Houses.** Luyanda Mphahlwa. South Africa

*“In addition each of the buildings was created without specialized workers but merely with the help of future inhabitants, who were this able to identify more closely with their new living quarters by taking part in the building process. This participatory approach is of particular significance since many South Africans tend to be skeptical of alternative construction methods.”*

**Red Location.** Noero Wolff Architects. South Africa.

*“The construction itself provided work and training for local inhabitants, a third of the construction workers for the building were recruited from among unskilled labourers from the immediate vicinity.”*

And perhaps the only contrasting position offered in terms of materials and aesthetics:

**Ubuntu Centre.** Field Architecture. South Africa

*“In 2009 the design won the internationally renowned Progressive Architecture Award conferred by Architect, the magazine of the American Institute of Architects. Constructed from exposed concrete and with large glass facades, the modern building complex represents for the architects an important construction to the identity and development of the city. “*

## Appendix B.6: EPWP Q4 2014-2015 RDP Housing Audit

Project Name	Programme name	Local Municipality	District / Metro	Prov	Project Description	Person-days Work	Work Opp/Av wage
A2 Housing	Housing	Mossel Bay	Eden	WC	Mossel Bay	1,485.00	99
Building of Houses in Abbotdale	Housing	Swartland	West Coast	WC	Abbotdale	1,311.00	40
Pearly Beach Housing Project: Eluxolweni 211 Houses	Housing	Overstrand	Overberg	WC	Pearly Beach	2,804.00	82
GAP Housing construction	Housing	Cape Agulhas	Overberg	WC	Bredasdorp	483	13
Housing Project: Construction of 30	Housing	Krnsna	Eden	WC	Krnsna	327	19
Joe Slovo: Phase3 USP 2886	Housing Delivery	City of Cape Town (CPT)	City of Cape Town	WC	Services & Top Structures for Subsidised Housing	6,819.00	44
Bulk services Joe Slovo	Housing Delivery	City of Cape Town (CPT)	City of Cape Town	WC	Bulk Services for Housing development	1,864.00	16
Joe Slovo Electrical Reticulation	Housing Delivery	City of Cape Town (CPT)	City of Cape Town	WC	Bulk Infrastructure and Lightning	2,038.00	14
Delft Symphony Precincts 3	Housing Delivery	City of Cape Town (CPT)	City of Cape Town	WC	Services and Topstructure for subsidised Housing	80,914.00	693
Beaufort West 240 IRDP	Housing Delivery	City of Cape Town (CPT)	Central Karoo (DC5)	WC	Building IRDP houses	1,281.00	72
IG/Incentive Grant Special Project Delft Symphony Precinct 3	Housing Delivery	City of Cape Town (CPT)	City of Cape Town	WC	Construction of Verges & Aprons	22,531.00	223
Boystown Boundary Wall	Housing Delivery	City of Cape Town (CPT)	City of Cape Town	WC	Construction of Boundary Wall Separating Boystown	2,826.00	31
Installation of engineering services to 250 even and the construction of 21 Housing Delivery	Housing Delivery	Witzenberg (WC022)	Cape Winelands (DC2)	WC	Residents from N2	390	15
RDH Houses in Smarty Town (Swellendam)	Housing Delivery	Swellendam (WC034)	Overberg (DC3)	WC	Installation of engineering services to 250 even and	1,602.00	59
Premiers Advancement of Youth	Housing Delivery	City of Cape Town (CPT)	City of Cape Town	WC	Building of 300 houses in smarty town	1,848.00	10
Thembeilhe Domestic Workers Housing Project	Housing Delivery	City of Cape Town (CPT)	City of Cape Town	WC	Give Matriculates of 2013 the work opportunity to work in the PWC for a period of 3 year	2,014.00	77
IG/Borriver: Construction of Top Structure	Subsidised Housing	Theewaterskloof (WC031)	Overberg (DC3)	WC	Construction of Civil Services and 219 Top Structures	605	5
Caledon Santa Side Saviva: Construction of Top Structures	Subsidised Housing	Theewaterskloof (WC031)	Overberg (DC3)	WC	Construction of Top Structures	1,610.00	17
Muiskraakop housing in Nqubela ERF2	Housing Delivery	Breedte River/Winelands (WC02)	Cape Winelands (DC2)	WC	Building of 130 houses in Muiskraakop Nqubela	1,864.00	49
Krnsna Planning and Development Housing IHS/Krnsna Vision 2020(T20)/1-Housing Delivery	Housing Delivery	Krnsna (WC048)	Eden (DC4)	WC	Construction of 140 platforms, 130 raft foundations and installations of services to 155 even Nekkes	2,332.00	33
IG/Grabouw Rainbow Housing Project: Construction of Top Structures	Housing Delivery	Theewaterskloof (WC031)	Overberg (DC3)	WC	East, Dansebos South, Oupad	3,371.00	31
Ocean View Mountain View Stone Masonry	Housing Delivery	City of Cape Town (CPT)	City of Cape Town	WC	Construction of Top Structures	12,340.00	269
Harover A GU	Housing Delivery	City of Cape Town (CPT)	City of Cape Town	WC	Housing Development Ocean View	2,970.00	106
Manenberg A Phase 2	Housing Delivery	City of Cape Town (CPT)	Metropolitan (CPT)	WC	Housing Development Harover Park	3,365.00	81
Manenberg B Phase 2	Housing Delivery	City of Cape Town (CPT)	City of Cape Town	WC	Housing Development Manenberg	4,095.00	68
Manenberg C Phase 2	Housing Delivery	City of Cape Town (CPT)	City of Cape Town	WC	Housing Development Manenberg	3,631.00	105
Electrification of Muiskraakop ERF2 in Robertson	Housing Delivery	Breedte River/Winelands (WC02)	Cape Winelands (DC2)	WC	Electrification of low cost housing	361	19
UNIONDALE HOUSING PROJECT	Housing Delivery	George (WC044)	Eden (DC4)	WC	UNIONDALE EHPH-CONSTRUCTION OF 183 HOUSES	11,760.00	70
3238.01: Wolseley Pine Valley Phase 2B(279 ser)USP	Housing Delivery	Witzenberg (WC022)	Cape Winelands (DC2)	WC	Service of 279 units in Pine valley	839	20
3209.01 : Bella Vista 268 services(RDP)	Housing Delivery	Witzenberg (WC022)	Cape Winelands (DC2)	WC	Construction of 268 services IRDP in Bella Vista	287	11
Zwellihle Upgrading of Informal Settlements	Housing Delivery	Overstrand (WC032)	Overberg (DC3)	WC	Installation of Engineering services to 141 sites	519	7
Mount Pleasant Extension 2	Housing Delivery	Overstrand (WC032)	Overberg (DC3)	WC	Installation of Engineering Services to 200 sites	763	14
Delft Infill 52 BNG Units on erf 24813	Housing Delivery	City of Cape Town (CPT)	City of Cape Town	WC	Slab, Ground Structure, Stair, Precast Slab, Top Structure and Roofing	432	8
Delft Infill Civil Ele. erf24555 22458 27units	Housing Delivery	City of Cape Town (CPT)	City of Cape Town	WC	Services and Top Structures for subsidized houses	147	7
Delft Infill Civil Electr: 34BNG units on erf25524	Housing Delivery	City of Cape Town (CPT)	City of Cape Town	WC	Services and Top Structures for subsidized housing	363	11
Buiflaga Housing Project	Housing Delivery	Swellendam (WC034)	Overberg (DC3)	WC	Bulk services: road and storm water and housing	146	11
Delft Infill 74 BNG Units on erf 21755	Housing Delivery	City of Cape Town (CPT)	City of Cape Town	WC	74 Top Structures and Services	463	9
Delft Infill 83 BNG Units erf 22761, precinct6	Housing Delivery	City of Cape Town (CPT)	City of Cape Town	WC	Services and Top Structures for subsidized housing	664	15
S8 IRDP Housing Project: 239 Sites	Housing Delivery	Beaufort West (WC053)	Metropolitan (CPT)	WC	Building of RDP Houses	550	16
Melkhoutfontein 170 Low Cost Housing Project for Hessequa Municipality	Housing Delivery	Hessequa (WC042)	Central Karoo (DC5)	WC	Melkhoutfontein 170 IRDP Low Cost Housing project	438	18
Gouda housing project	Housing Delivery	Drakenstein (WC023)	Eden (DC4)	WC	housing	836	38
Paternoster(202 services) IRDP	Housing Delivery	Saldanha Bay (WC014)	Cape Winelands (DC2)	WC	Construction of Paternoster (202 services) IRDP	1,005.00	22
Saldanha Old Middelpos (551 services) IRDP phase 3	Housing Delivery	Saldanha Bay (WC014)	West Coast (DC1)	WC	Construction of (551 services) IRDP in Middelpos	927	26
Saldanha Diazville (559 services) IRDP	Housing Delivery	Saldanha Bay (WC014)	West Coast (DC1)	WC	Construction of (559 services) IRDP in Diazville	2,075.00	39

## Appendix C.1: Signed Ethics Forms. (1/4)

**EBE Faculty: Assessment of Ethics in Research Projects (Rev2)**

Any person planning to undertake research in the Faculty of Engineering and the Built Environment at the University of Cape Town is required to complete this form before collecting or analysing data. When completed it should be submitted to the supervisor (where applicable) and from there to the Head of Department. If any of the questions below have been answered YES, and the applicant is NOT a fourth year student, the Head should forward this form for approval by the Faculty EIR committee; submit to Ms Zulpha Geyer ([Zulpha.Geyer@uct.ac.za](mailto:Zulpha.Geyer@uct.ac.za), Chem Eng Building, Ph 021 650 4791).  
**NB: A copy of this signed form must be included with the thesis/dissertation/report when it is submitted for examination**

*This form must only be completed once the most recent revision EBE EIR Handbook has been read.*

Name of Principal Researcher/Student: Daniel Splaingard Department: Architecture

Preferred email address of the applicant: [splaingard@gmail.com](mailto:splaingard@gmail.com)

If a Student: Degree: MPhil Supervisor: Iain Low

If a Research Contract indicate source of funding/sponsorship:

Research Project Title: **MAKE WORK: Investigating the confluence of architecture projects and job creation programmes in South Africa**

**Overview of ethics issues in your research project:**

Question 1: Is there a possibility that your research could cause harm to a third party (i.e. a person not involved in your project)?	YES	NO
Question 2: Is your research making use of human subjects as sources of data? If your answer is YES, please complete Addendum 2.	YES	NO
Question 3: Does your research involve the participation of or provision of services to communities? If your answer is YES, please complete Addendum 3.	YES	NO
Question 4: If your research is sponsored, is there any potential for conflicts of interest? If your answer is YES, please complete Addendum 4.	YES	NO

If you have answered YES to any of the above questions, please append a copy of your research proposal, as well as any interview schedules or questionnaires (Addendum 1) and please complete further addenda as appropriate. Ensure that you refer to the EIR Handbook to assist you in completing the documentation requirements for this form.

**I hereby undertake to carry out my research in such a way that**

- there is no apparent legal objection to the nature or the method of research; and
- the research will not compromise staff or students or the other responsibilities of the University;
- the stated objective will be achieved, and the findings will have a high degree of validity;
- limitations and alternative interpretations will be considered;
- the findings could be subject to peer review and publicly available; and
- I will comply with the conventions of copyright and avoid any practice that would constitute plagiarism.

**Signed by:**

	Full name and signature	Date
Principal Researcher/Student: DANIEL SPLAINGARD		27 March 2015
This application is approved by:		
Supervisor (if applicable):		Z. AFXU'15
HOD (or delegated nominee): Final authority for all assessments with NO to all questions and for all undergraduate research.		
Chair: Faculty EIR Committee For applicants other than undergraduate students who have answered YES to any of the above questions.		

## Appendix C.1: Signed Ethics Forms. (2/4)

**ADDENDUM 1:**

Please append a copy of the research proposal here, as well as any interview schedules or questionnaires:

*See attached.*

**ADDENDUM 2:** To be completed if you answered YES to Question 2:

It is assumed that you have read the UCT Code for Research Involving Human Subjects (available at <http://web.uct.ac.za/depts/educate/download/uctcodeforresearchinvolvinghumansubjects.pdf>) in order to be able to answer the questions in this addendum.

2.1 Does the research discriminate against participation by individuals, or differentiate between participants, on the grounds of gender, race or ethnic group, age range, religion, income, handicap, illness or any similar classification?	YES	NO
2.2 Does the research require the participation of socially or physically vulnerable people (children, aged, disabled, etc) or legally restricted groups?	YES	NO
2.3 Will you not be able to secure the informed consent of all participants in the research? (In the case of children, will you not be able to obtain the consent of their guardians or parents?)	YES	NO
2.4 Will any confidential data be collected or will identifiable records of individuals be kept?	YES	NO
2.5 In reporting on this research is there any possibility that you will not be able to keep the identities of the individuals involved anonymous?	YES	NO
2.6 Are there any foreseeable risks of physical, psychological or social harm to participants that might occur in the course of the research?	YES	NO
2.7 Does the research include making payments or giving gifts to any participants?	YES	NO

If you have answered YES to any of these questions, please describe below how you plan to address these issues:

**ADDENDUM 3:** To be completed if you answered YES to Question 3:

3.1 Is the community expected to make decisions for, during or based on the research?	YES	NO
3.2 At the end of the research will any economic or social process be terminated or left unsupported, or equipment or facilities used in the research be recovered from the participants or community?	YES	NO
3.3 Will any service be provided at a level below the generally accepted standards?	YES	NO

If you have answered YES to any of these questions, please describe below how you plan to address these issues:

**ADDENDUM 4:** To be completed if you answered YES to Question 4

4.1 Is there any existing or potential conflict of interest between a research sponsor, academic supervisor, other researchers or participants?	YES	NO
4.2 Will information that reveals the identity of participants be supplied to a research sponsor, other than with the permission of the individuals?	YES	NO
4.3 Does the proposed research potentially conflict with the research of any other individual or group within the University?	YES	NO

If you have answered YES to any of these questions, please describe below how you plan to address these issues:

## Appendix C.1: Signed Ethics Forms. (3/4)

## EBE Faculty: Assessment of Ethics in Research Projects

Any person planning to undertake research in the Faculty of Engineering and the Built Environment at the University of Cape Town is required to complete this form before collecting or analysing data. When completed it should be submitted to the supervisor (where applicable) and from there to the Head of Department. If any of the questions below have been answered YES, and the applicant is NOT a fourth year student, the Head should forward this form for approval by the Faculty EIR committee: submit to Ms Zakiya Chikte ([Zakiya.chikte@uct.ac.za](mailto:Zakiya.chikte@uct.ac.za)); New EBE Building, Ph 021 650 5739).

Please note – It is important to keep a signed copy of this form as students must include a copy of the completed form with the dissertation/thesis when it is submitted for examination.

Name of Principal Researcher/Student: Daniel Splaingard Department: Architecture

If a Student: Degree: MPhil Architecture Supervisor: Iain Low

If a Research Contract indicate source of funding/sponsorship: NONE

Research Project Title: *DesignWork. A Study of Public Works Programmes in South African Architectural Projects*

Overview of ethics issues in your research project:

Question 1: Is there a possibility that your research could cause harm to a third party (i.e. a person not involved in your project)?	YES	NO
Question 2: Is your research making use of human subjects as sources of data? If your answer is YES, please complete Addendum 2.	YES	NO
Question 3: Does your research involve the participation of or provision of services to communities? If your answer is YES, please complete Addendum 3.	YES	NO
Question 4: If your research is sponsored, is there any potential for conflicts of interest? If your answer is YES, please complete Addendum 4.	YES	NO

If you have answered YES to any of the above questions, please append a copy of your research proposal, as well as any interview schedules or questionnaires (Addendum 1) and please complete further addenda as appropriate.

I hereby undertake to carry out my research in such a way that

- there is no apparent legal objection to the nature or the method of research; and
- the research will not compromise staff or students or the other responsibilities of the University;
- the stated objective will be achieved, and the findings will have a high degree of validity;
- limitations and alternative interpretations will be considered;
- the findings could be subject to peer review and publicly available; and
- I will comply with the conventions of copyright and avoid any practice that would constitute plagiarism.

Signed by:

	Full name and signature	Date
Principal Researcher/Student: Daniel Splaingard		10 February 2016

This application is approved by:

Supervisor (if applicable): Iain Low		10 February 2016
HOD (or delegated nominee): Final authority for all assessments with NO to all questions and for all undergraduate research.		
Chair: Faculty EIR Committee For applicants other than undergraduate students who have answered YES to any of the above questions.		

**Appendix C.1: Signed Ethics Forms. (4/4)****ADDENDUM 1:**

Please append a copy of the research proposal here, as well as any interview schedules or questionnaires:

**SEE ATTACHED PDF**

**ADDENDUM 2:** To be completed if you answered YES to Question 2:

It is assumed that you have read the UCT Code for Research Involving Human Subjects (available at <http://web.uct.ac.za/depts/educate/download/uctcodeforresearchinvolvinghumansubjects.pdf>) in order to be able to answer the questions in this addendum.

2.1 Does the research discriminate against participation by individuals, or differentiate between participants, on the grounds of gender, race or ethnic group, age range, religion, income, handicap, illness or any similar classification?	YES	NO
2.2 Does the research require the participation of socially or physically vulnerable people (children, aged, disabled, etc) or legally restricted groups?	YES	NO
2.3 Will you not be able to secure the informed consent of all participants in the research? (In the case of children, will you not be able to obtain the consent of their guardians or parents?)	YES	NO
2.4 Will any confidential data be collected or will identifiable records of individuals be kept?	YES	NO
2.5 In reporting on this research is there any possibility that you will not be able to keep the identities of the individuals involved anonymous?	YES	NO
2.6 Are there any foreseeable risks of physical, psychological or social harm to participants that might occur in the course of the research?	YES	NO
2.7 Does the research include making payments or giving gifts to any participants?	YES	NO

If you have answered YES to any of these questions, please describe how you plan to address these issues (append to form):

**ADDENDUM 3:** To be completed if you answered YES to Question 3:

3.1 Is the community expected to make decisions for, during or based on the research?	YES	NO
3.2 At the end of the research will any economic or social process be terminated or left unsupported, or equipment or facilities used in the research be recovered from the participants or community?	YES	NO
3.3 Will any service be provided at a level below the generally accepted standards?	YES	NO

If you have answered YES to any of these questions, please describe how you plan to address these issues (append to form)

**ADDENDUM 4:** To be completed if you answered YES to Question 4

4.1 Is there any existing or potential conflict of interest between a research sponsor, academic supervisor, other researchers or participants?	YES	NO
4.2 Will information that reveals the identity of participants be supplied to a research sponsor, other than with the permission of the individuals?	YES	NO
4.3 Does the proposed research potentially conflict with the research of any other individual or group within the University?	YES	NO

If you have answered YES to any of these questions, please describe how you plan to address these issues (append to form)

## Appendix C.2: Chronology of Interviews

Chronology of Interviews for MPhil Research					
	<i>Name</i>	<i>Position</i>	<i>Location</i>	<i>Date</i>	<i>Recorded?</i>
1	Anne Fitchett	Material Research Mapungubwe	Wits	March 28 2015	Y
2	Antoinette Van Wyk	SANParks	SanPark Head Office	March 30 2015	Y
3	Louw De Bruin	SANParks Mapungubwe Site Manager	Mapungubwe National Park	April 4 2015	Y
4	Musina EPWP Manager*	Programme Manager	Musina Municipal Office	April 1 2015	N
5	Peter Rich	Architect Mapungubwe	Home/Office	April 6 2015	Y
6	Abre Crafford	Architect Mapungubwe Phase 1	Office Pretoria	April 7 2015	Y
7	James Bellamy	Vault Builder Mapungubwe	Skype/New Zealand	April 13 2015	Y
8	Michael Ramage	Vault Engineer Mapungubwe	Skype/Oxford, England	April 30 2015	Y
9	Carin Smuts*	Architect Cape Town	CS Studio Sea Point	April 28 2015	N
10	Andre Spies	Architect Ocean View	Cape Town	May 12 2015	Y
11	EPWP Manager Cape Town*	Programme Administrator	City of Cape Town Office	May 21 2015	N
12	Theo DeVilliers	Site Supervisor Mellon Housing	Ocean View Site	May 26 2015	Y
13	Keith Cattell + Abimbola Windapo*	Academic Faculty	UCT	29-May-15	N
14	Clifton Carolus	Project Manager Ocean View	City of Cape Town: Plumstead	June 1 2015	Y
15	Clifton Carolus*	Project Manager Ocean View	City of Cape Town: Plumstead	June 2 2015	N
16	Pauline Houniet*	City of Cape Town	City of Cape Town: Plumstead	July 2 2015	N
17	Jo-Anne Duggan	Exhibit Designer Mapungubwe	UCT	June 4 2015	Y
18	Matt Hodge	Tile Engineer Mapungubwe	Skype/Massachusetts	June 16 2015	Y
19	Henry Fagan	Structural Engineer Mapungubwe	Cape Town Office	June 18 2015	Y
20	Piet Van Staden	Owner: USNA Boeurs	Wimpy's Louis Trichardt	June 26 2015	Y
21	Thys Croons	Site Foreman USNA Boeurs	Louis Trichardt	June 27 2015	Y
22	Robert McCutcheon*	Civil Engineer/Researcher/Professor	University of Witwatersrand	July 1 2015	N
23	Ignatius Ariyo	EPWP Infrastructure Director	EPWP Office	July 3 2015	Y
24	Farrahdieba Sauls	CLO Ocean View	Ocean View Site Office	July 8 2015	Y
25	Denize Izaks	CLO Ocean View	Ocean View Site Office	July 8 2015	Y
26	Sharmaine Rasdien	Ocean View Community Member	Ocean View Site Office	July 8 2015	Y
27	Vault Builder #1*	Elim based mason	KFC Elim (near Louis Trichardt)	June 26 2015	N
28	Vault Builder #2*	Elim based mason	KFC Elim (near Louis Trichardt)	June 26 2015	N
29	Etienne Bruwer	Ocean View Architect	Home/Office	July 10 2015	Y
30	Anne Fitchett	Material Research Mapungubwe	Wits	July 2 2015	Y
31	Peter Rich*	Architect Mapungubwe	Home/Office	July 1 2015	N
32	Heinrich Kammayer	Clerk-of-Works Mapungubwe	Architects Office	May 29 2015	Y
33	Pauline Houniet	City of Cape Town	City of Cape Town: Plumstead	July 15 2015	Y
34	Franz Prinsloo	Clerk-of-Works Mapungubwe	Skype via NYC	July 12 2015	Y

\*Unofficial informational background discussion

### Appendix C.3: Baseline Interview Questions

*Daniel Splaingard\_UCT MPhil Research Project*

#### ***Baseline Interview Questions***

##### BACKGROUND:

1. Briefly introduce yourself and describe your role within the project:
2. Were job-creation goals within the project clearly established? How and where were these stated and by whom?
3. What was your role/your organizations role in the job creation process?
4. Were the goals described in Question #2 achieved? What methods were used to measure achievement?

##### ARCHITECTURE:

5. How was the building design informed by the goal of local job training? How did the materials and methods employed evolve within development of the project?
6. How did the design of the project fit with local skills and employment interest? Was existing local construction capacity evaluated?
7. How was the recruitment and training of community participants developed? How was training process developed and did it tie into existing training programs or external standards?

##### RESULTS:

8. Does evidence exist of further construction in the region utilizing the methods used in the project?
9. Were employment opportunities within this project intended to lead to longer-term job opportunities? If so, what strategies were used towards this end?
10. What is the evidence that the project has had a continued impact on employment of involved workers?



## Appendix C.4: Interview Recording Consent Form

Audio Recording Release Form

I voluntarily agree to be recorded during the interview being conducted by the Daniel Splaingard, UCT MPhil Architecture Student. I understand that the audio files will be used to gather information related to his MPhil research, and such information will be used to generate a thesis dissertation. The audio files will be kept for approximately one year and will be securely stored at UCT. After the data is collected and transcriptions are made, the audio files will be destroyed. I understand that I can choose to review the completed dissertation prior to publication by checking box below. If selected, Daniel Splaingard will provide a copy of his thesis dissertation prior to publication for review.

---

My Signature
Date

Signature of the Investigator	Date
-------------------------------	------

☐ I would like to review completed dissertation before publication.

## Appendix C.5: Interview Consent Form



### SCHOOL OF ARCHITECTURE, PLANNING AND GEOMATICS

University of Cape Town  
Private Bag x3, Rondebosch 7701  
Centlivres Building  
Email: [Janine.Meyer@uct.ac.za](mailto:Janine.Meyer@uct.ac.za) Tel: 27 21 6502359

## UNIVERSITY OF CAPE TOWN

April 2015

**STATEMENT TO BE READ OUT TO AN INTERVIEWEE BY A STUDENT ABOUT TO UNDERTAKE AN INTERVIEW FOR THE PURPOSES OF A MASTERS DISSERTATION, AS A REQUEST FOR PERMISSION FOR THE NAME AND/OR IDENTITY OF THE INTERVIEWEE TO BE REVEALED IN THE DISSERTATION**

A copy of the form can be given to the respondent if they request it.

MY NAME IS DANIEL SPLAINGARD AND I AM STUDYING ARCHITECTURE AT THE UNIVERSITY OF CAPE TOWN.

I AM DOING RESEARCH ON THE CONFLUENCE OF ARCHITECTURE PROJECTS AND JOB CREATION PROGRAMMES IN SOUTH AFRICA.

AS PART OF MY MASTERS DISSERTATION AND I WOULD LIKE TO ASK YOU SOME QUESTIONS TO HELP ME WITH MY RESEARCH.

I WOULD LIKE TO USE YOUR NAME, DESIGNATION AND POSSIBLY DIRECT QUOTES IN MY DISSERTATION AS A SOURCE OF INFORMATION. PLEASE INDICATE YES OR NO BELOW TO GIVE OR WITHHOLD YOUR PERMISSION FOR ME TO DO THIS.

**YES I GIVE PERMISSION FOR YOU TO USE MY NAME / DESIGNATION /WORDS IN YOUR DISSERTATION**

☐

**NO I DO NOT GIVE PERMISSION FOR YOU TO USE MY NAME / DESIGNATION/WORDS IN YOUR DISSERTATION**

☐

IF YOU WANT TO END THE INTERVIEW AT ANY POINT YOU ARE FREE TO DO SO.

MY SUPERVISOR IS IAIN LOW AND HIS/HER CONTACT DETAILS ARE:

Email: [ian.low@uct.ac.za](mailto:ian.low@uct.ac.za) Phone: 021-6502371

-----  
Signature and designation (interviewee)

-----  
Signature of student

*This form is to be completed with your name and topic and submitted with your ethics form*

## Appendix C.6: List of Site Visits

Chronology of Site Visits		
Mapungubwe and Related	Date	Meeting
Civil Engineering Rooftop Vaults	March 28, 2015	Anne Fitchett Interview
Mapungubwe Interpretive Center	April 4, 2015	First visit to building and exhibits
Visit to Kruger National Park	June 20, 2015	Visit 5 different camps in park
Elim/Louis Trichardt	June 26, 2015	Interviews with Masons and USNA Staff
Visit to Alexandre Cultural Centre	July 1, 2015	Short visit while in Johannesburg
Lufhereng Housing Project	July 1, 2015	Drive around massive scale RDP Development
Addo Interpretive Center	August 17, 2015	Visit Addo Interpretive Centre
Visit to SANParks West Coast National Park	September 6, 2015	Sunday drive to see wildflowers
Visit to Cape Point Nature Reserve	February 19, 2016	Brief visit following Ocean View site visit
Visit to Moruleng Cultural Village	March 17, 2016	Visit to Exhibition and Public Spaces
Ocean View and Related	Date	Meeting
Ocean View Visit #1	April 5, 2015	Initial Drive around met site foreman
Ocean View Visit #2	May 6, 2015	Etienne Site Meeting
Ocean View Visit #3	May 26, 2015	Key Ceremony+Interview with Theo
Visit to Mbekweni Stonehouses	May 26, 2015	Observation of Housing Quality
Ocean View Site Visit	May 28, 2015	With Heinrich Kammeyer
Visit to Human Settlements Office Plumstead	June 1, 2015	Interview with Clifton
Visit to Human Settlements Office Plumstead	June 2, 2015	Interview #2 with Clifton
Visit to Human Settlements Office Plumstead	June 2, 2015	Brief Discussion with Pauline
Ocean View Visit #5	July 8, 2015	Interview with CLO's
Ocean View Visit #6	July 9, 2015	Interview with CLO's
Visit to Phillipi Agricultural Settlement	July 10, 2015	Site Visit with Etienne+Interview at Studio
Visit to Human Settlements Office Plumstead	July 15, 2015	Interview with Pauline
Ocean View Visit #4	July 22, 2015	Drive Around
Ocean View Site Visit #7	December 12, 2015	W/Sonja en route to Scarborough
Ocean View Site Visit #8	February 19, 2016	Visit to talk with CLO's in trailer
Visit to Pelican Park Housing	March 2, 2016	Housing tour with Sonja Spamer
Visit to Victoria Mxenge Housing	March 2, 2016	Talk with Rose Maso
EPWP & Misc. Events	Date	Meeting
Visit to Guga S'Thebe Childrens Theatre	August 15, 2014	Tour with Nora Mueller
Visit to Elim Thatch Village	October 12, 2014	Drive from Hermanus to see thatch work
Visit Mamre Visitors Centre	October 20, 2014	Andy Horn job training in traditional methods
Visit to Empower Shack	February 4, 2015	lead by Ben Mansfield
Visit to Mannenberg Housing Resource Center	March 2, 2015	Get tour from security guard
Skype call with Kelly Doran of MASS Design Group	March 27, 2015	Discussion of MASS job-creation approaches
Lunch with Bruce Engel, Sharon Davis Design	April 14, 2015	Discussion of job-creation in Rwanda
Andres Lepik Lecture at UCT	May 25, 2015	Author of <u>Afritecture</u>
Iain Low Lecture on Lesotho TSRP	August 12, 2015	Description of design and construction of schools
Visit to see TSRP Work in Lesotho	October 1, 2015	Visit many TSRP schools
George EPWP Site Visit	October 15, 2015	Talk with EPWP manager on site
Visit to Delft Symphony Way w/Carin Smuts	October 22, 2015	Observation of Mosaic Work in new clinic
Kelly Doran from MASS Design Group in Cape Town	February 21, 2016	Lunch and some discussion about MASS
Presentation of Academic Paper to CIDB Conference	February 6, 2016	Awarded "Best Paper Presented"

## Appendix D.1: EPWP Glossary of Terms<sup>365</sup>

**Actual Expenditure:** the expenditure on activities implemented labour-intensively on the project by the contractor added to the expenditure by the professional service provider appointed to design and supervise the project. The actual expenditure excludes expenditure on government management and administration.

**Actual Labour Intensity:** Actual labour intensity = actual expenditure on wages expressed as a percentage of the total actual expenditure on activities implemented labour-intensively

**Actual Output:** achieved physical quantities (e.g. km or road, pipeline) corresponding to the actual expenditure.

**Beneficiaries:** These are the people who participate in the EPWP as workers. According to the *Code of Good Practice*, The beneficiaries of the programmes should preferably be non-working individuals from the most vulnerable sections of disadvantaged communities who do not receive any social security pension income.

**By hand:** refers to the use of tools which are manually operated and powered.

**Convergence:** is the fostering of synergies within and amongst sectors and programmes of the Expanded Public Works Programme (EPWP) to ensure that resources are efficiently and effectively utilised to optimise benefits for sectors, programmes, and participants.

**Daywork:** is work done that is paid on a daily basis in situations where it is impossible to estimate the quantity of the required input in advance. It is usually applied in situations where the quantitative measurement or setting of task including pricing is not possible.

**Demographic Characteristics of Workers:** The number of workers that fall within the following categories must be recorded: Demographic EPWP Target

Youth (i.e. 16-35 years of age) 55%\_\_Women 55%\_\_People with Disabilities 2%

**EPWP Integrated Grant:** refers to funds payable to public bodies through a conditional grant to incentivize employment creation under the EPWP.

**EPWP Project:** refers to a project that incorporates the following elements to the extent possible: employment creation, labour-intensive methods, local resource optimisation (only use equipment for activities that cannot be effectively done by the use of labour), quality is not compromised, skills development and transfer, community ownership, optimisation of quality cost and time, decent working conditions (fair wages, appropriate provision for safety and health and freedom of association) and lays the foundation for sustainability.

**EPWP Target:** refers to a target set by the National Department of Public Works specifying the number of work opportunities and FTEs that a public body should endeavor to create.

---

<sup>365</sup> DPW, *Guidelines for the Implementation of Labour-Intensive Infrastructure Projects Under the Expanded Public Works Programme*

**Expanded Public Works Programme (EPWP):** refers to a programme to provide public or community assets or services through labour-intensive approaches initiated by government and funded from public resources.

**Form of Contract:** refers to a document (conditions of contract) published by industry which establishes the rights, liabilities and obligations of the contracting parties and the procedures for the administration of the contract.

**Full Time Equivalent (FTE) Employment Created:** refers to one person-year of employment. One person-year is equivalent to 230 person days of work. The 230 days are effective days of work after subtracting provision for non-productive days in a year (e.g. leave, holidays, etc.).

1 FTE = person days divided by 230.

**Group task:** is a work method whereby tasks are organized on the basis of many people completing one task (to produce a defined output in a day).

**Identity Documents:** refers to South African identity registration document.

**Labour-Intensity:** refers to the expenditure on wages expressed as a percentage of the total expenditure on activities implemented labour-intensively.

**Labour-intensive:** refers to methods of construction and maintenance involving a mix of labour and machines without compromising on quality, where labour is the primary resource supported by plant and equipment for activities that cannot be feasibly done by labour only. -

**Large Project:** is an infrastructure project with a value of more than R 30 million (including VAT) that involves the use of labour-intensive methods on a significant scope of the works to maximise the creation of work opportunities.

**Learnership:** is a structured learning programme which involves theory, practical and workplace learning and leads to a registered qualification on the National Qualification's Framework (NQF).

**Ministerial Determination:** refers to a determination issued by the Minister of Labour in terms of the Basic Conditions of Employment Act of 1997. It applies to Expanded Public Works Programmes. The Ministerial Determination must be read in conjunction with the Code of Good Practice for the Expanded Public Works Programme.

**Person-days of Employment Created:** refers to the number of people who worked on a project multiplied by the number of days each person worked. ·

**Planned Labour Intensity:** is the planned wages budget expressed as a percentage of the total planned budget for activities to be implemented labour-intensively.

**Planned Output:** refers to planned (e.g. km or road, pipeline) corresponding to the planned budget.

**Public body:** refers to a department, state owned entity, constitutional institution, municipality, public entity or municipal entity.

**Project Budget:** refers to the planned budget on activities to be implemented labour-intensively + the professional fees for the professional service provider appointed to design and supervise the project. The project budget excludes government management & administration costs.

**Project Wage Rate:** is the daily wage (whether task-rated or time-rated) per individual. This wage rate must be inserted in the Project tender document as per the EPWP Guidelines.

**Task:** refers to the amount of work to be performed to a defined quantity and quality.

**Task rate:** refers to the amount of work to be performed by a worker to a defined quantity and quality and be completed in a working day.

**Training Person-Days:** is the number of people who attended training x the number of days of training per person. *Training should be reported as follows;*

1. Number of people trained
2. Number of people that received accredited training
3. Number of people that received non-accredited training
4. Profile of the participants (Women, Disabled, Youth)
5. Percentage of participants who worked on the project after receiving training.

**Scope of work:** refers to a specification and description of the services or construction/maintenance works which are to be provided and any other requirements and constraints relating to the manner in which the contract is to be performed.

**Semi-skilled work:** refers to work requiring a person to have some degree of training or familiarization with the task to be performed before being able to operate at optimal efficiency.

**Sustainable Livelihoods:** a livelihood comprises the capabilities, assets (including both material and social resources) and activities required for a means of living. A livelihood is sustainable when it can cope with and recover from the stresses and shocks and maintain or enhance its capabilities and assets both now and in the future without undermining the natural resource base. It is not just about the means to survive, but the capability to thrive.

**Unskilled work:** refers to work that does not require a person to have received prior training related to the task to be performed and being able to operate to a satisfactory standard.

**Wage Rate:** refers to the set wage (whether task-rate or time-rated) to be paid to a worker who completes assigned work for the day.

**Work Opportunity:** refers to paid work created for an individual on an EPWP project for any period of time, within the employment conditions of the *Code of Good Practice for the Expanded Public Works Programme*. *Learnerships* will also constitute work opportunities. The same individual can be employed at different times on different projects (not concurrently) and each period of employment will be counted as a work opportunity.

## Appendix D.2: EPWP Sector Size Table

## Annexure A

**Expanded Public Works Programme (EPWP) 1st Quarter 2014/15**  
**(Cumulative: 1 April 2014 to 30 June 2014)**  
**Report: Overall National Consolidated per Sector**

National Totals													
	5 593	R 88.9 bn	R 3.1 bn	59 705	557	423 387	423 387	45%	68%	0.654%	R 99	R 1.3 bn	
Sector	Number of Projects	2012/13 Allocated Project Budget (Including Professional Fees)	Expenditure (Including Professional Fees) 1 April 2014 to 30 June 2014	Person-Years of Work including Training (FTE) (1 April 2014 to 30 June 2014)	Person-Years of Training (1 April 2014 to 30 June 2014)	Gross Number of Work opportunities Created (1 April 2014 to 30 June 2014)	Calculated Net Number of Work Opportunities Created (1 April 2014 to 30 June 2014)	% Youth	% Women	% People with Disabilities	Average Manual workers Minimum Daily Wage Rate	Calculated Wages paid out to employees on EPWP Projects (1 April 2014 to 30 June 2014)	
Infrastructure Sector	1 863	R 55 056 658 814	R 2 140 596 246	23 334	96.80	189 708	189 708	40%	61%	0.203%	R 128.17	R 567 382 308	
Environmental & Culture Sector	1 131	R 30 466 031 413	R 453 310 119	11 292.6	401.84	66 250	66 250	63%	57%	1.131%	R 106.16	R 254 266 803	
Social Sector	2 316	R 2 360 906 252	R 390 158 765	17 007	57.98	79 396	79 396	40%	86%	0.120%	R 75.32	R 336 440 793	
Non-State Sector													
Community Works (DCoG)	62	R 704 840 824	R 96 750 632	6 295	0.41	60 256	60 256	44%	78%	0.909%	R 72.36	R 105 003 686	
Non Profit Organizations (NPO's)	221	R 276 324 952	R 48 774 849	1 776		27 777	27 777	52%	77%	3.568%	R 71.00	R 29 001 086	

**Notes & Definitions:**

1. The EPWP report is based on information received from reporting bodies across identifies EPWP Sector Departments for the period 1 April 2014 to 30 June 2014 and should be read in conjunction with the narrative section of the relevant EPWP Quarterly Report.
2. This consolidated report has been generated from a per project dataset. Data received from national and provincial governments, as well as municipalities.
3. Project budgets are based on reports received, some of these budgets might run over multiple financial years. Infrastructure Sector budgets are not only based on PIG and MIG funding, but also on Provincial Equitable Shares.
4. Expenditure in some cases are *actual expenditure* and in other cases *transferred funds* to provinces and implementing bodies.
5. Zero's or blank fields imply that reporting bodies did not report on requested information.
6. A work opportunity is paid work created for an individual for any period of time. The same individual can be employed on different projects and each period of employment will be counted as a work opportunity.
7. A work opportunity in the Infrastructure Sector has an average duration of four (4) months and in the Environment & Culture Sector an average duration of six (6) months.
8. The "Gross Number of Work Opportunities" is the overall number of work opportunities that the reporting body has reported on.
9. The "Net Number of Work Opportunities" is calculated by subtracting the possible work opportunities if the projects were implemented machine intensively (MI) from the "Gross Work Opportunities". Thus these net work opportunities can be viewed as the EPWP value added opportunities. This calculation only applies to the Ithi.
10. One Person-Year of Work is equal to 230 paid working days including paid training days. The calculated wages paid out to employees on EPWP projects have been calculated by multiplying the minimum wage rate with the person-days of work.
11. Planned projects or projects that have not started as yet, have been filtered out of this consolidated report.
12. The EPWP Web Based Reporting System (WBRS) allows for budget adjustments which may reflect budgets being adjusted either lower or higher than from a previous reporting period.
13. Person-days of training reported from the MIS has been subtracted from person-days of work where reported as a single figure for person-days of work and account for fewer person-years of training.

## Appendix D.3: Summary of EPWP Phases



## Introduction

The Expanded Public Works Programme (EPWP) is one element within a broader government strategy to reduce poverty through the alleviation and reduction of unemployment.

1. Phase I of the Expanded Public Works Programme commenced on 1 April 2004 and had the goal of creating 1 million work opportunities over its first five years.
2. Phase II of the Expanded Public Works Programme was implemented over the 2009/10 – 2013/14 financial years with the aim of creating 2 million full time equivalent jobs (or 4.5 million work opportunities) by the end of the period.

While the second phase was a continuation of the first phase in many ways, phase II introduced the following changes:

- a. **Significantly expanded the number of temporary work opportunities created as well as increase the duration of these work opportunities** offered to provide increased income to the poor and unemployed. Hence, the primary output of the programme had been defined as the number of full time equivalent jobs (FTEs) created.
- b. **Located clear political and administrative accountability for EPWP targets across all spheres of government and formally mobilising all spheres of government and public bodies to take ownership of, and contributed to the EPWP targets through the signing of intergovernmental protocols or agreements.**
- c. **Mainstreamed EPWP criteria and outputs with the core mandates and programmes of implementing public bodies**
- d. **Mobilised non-state capacity to deliver additional EPWP work opportunities**
- e. **Provided technical support to implementing bodies**
- f. **Introduced tailor made EPWP incentives for different spheres and sectors:**
  - i. **A wage subsidy** provided to volunteers in non-government organisations (NGOs) who already create work for poor communities and had programmes/ projects that were primarily funded, but whose labour force and service delivery could be expanded in terms of size, reach and coverage if given a wage subsidy.
  - ii. **An expansion incentive** provided to performing public bodies that have the potential to immediately expand their EPWP programmes/ projects and create more work, including:
    - An earmarked budget allocation to *national government departments in the Environment and Culture Sector (E&Cs)* to expand their programmes/ projects in line with agreed labour intensity minimum and cost per job targets;
    - Through the schedule 5 Social Sector EPWP Integrated Grant to *provincial Social Sector departments* to expand their early childhood development (ECD) and home community based care (HCBC) programmes delivered through NGOs in line with an agreed business plan and set service standards;
    - Through the schedule 5 EPWP Integrated Grant to *provincial infrastructure and E&Cs departments* to expand their labour intensive EPWP projects;
    - Through the schedule 5b EPWP Integrated Grant to *municipalities* to expand their labour intensive EPWP projects in any sector in line with an agreed EPWP project list.

3. Phase III of the Expanded Public Works Programme is being implemented over the 2014/15 – 2018/19 financial years with the aim of creating 6 million work opportunities by the end of the period.

EPWP Phase III is based on the following 4 principles:

- a. **Adherence to the EPWP minimum wage and employment conditions under the EPWP Ministerial Determination.**
- b. **Selection of workers based on:**
  - clearly defined process; and
  - defined criteria.
- c. **Work provides or enhances public goods or community services;**
- d. **Minimum labour intensity appropriate to each sector.**

### Definitions Reminder Box

A **work opportunity** is paid work created for an individual on an EPWP project for any period of time.

A **full time equivalent job** refers to one person-year of employment. One person-year is equivalent to 230 person days of work.

A **public body** is any organisation that is defined by legislation as a government body; and for purposes of this document, refers to a provincial department or municipality within these spheres of government.

An **EPWP target** refers to the number of FTEs the public body must aim to create with its EPWP projects, in a particular financial year with its budget allocations. *The EPWP Target = Grant FTE Target + Baseline FTE Target.*

A **wage subsidy** is a part payment towards the cost of labour. The subsidy is determined as the number of rands paid per day of work created.

An **expansion incentive** is an allocation provided to public bodies to expand their EPWP programmes/ projects in line with an approved plan.



## Appendix D.4: EPWP Incentive Grant



### Chapter 3: How the EPWP Grant works (Eligible public bodies)

**Chapter summary:** This chapter explains how public bodies become eligible for the EPWP Grant, how the grant allocations are calculated and how public bodies can expect the grant to be disbursed.

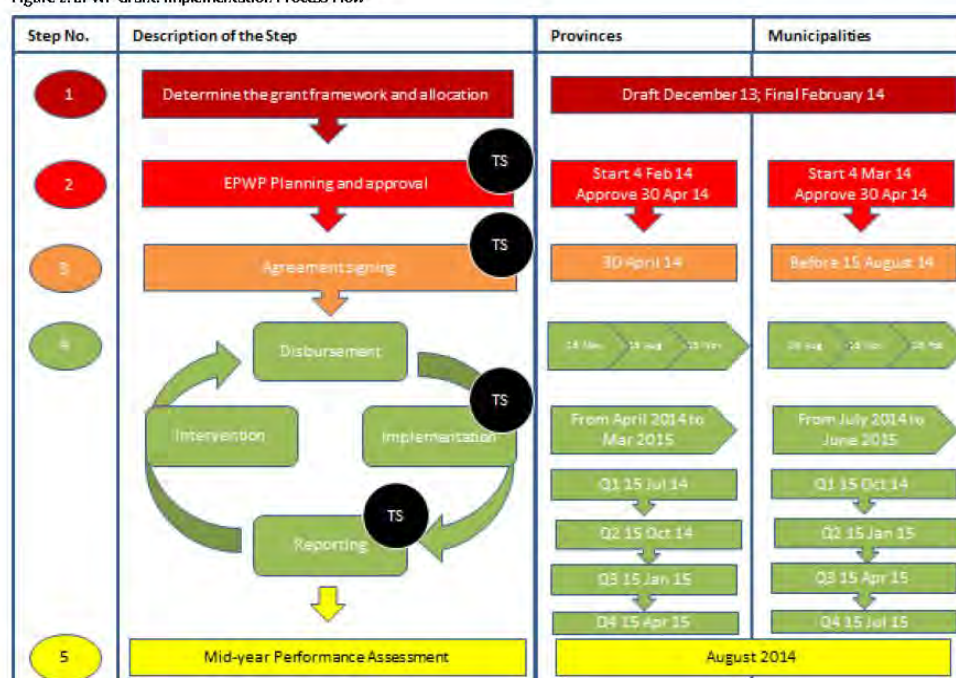
The intention of the EPWP Integrated Grant is:

*“To provide EPWP funding to expand job creation efforts in specific focus areas, where labour intensive delivery methods can be maximised.”*

Figure 2 below sets out the implementation process for the EPWP Grant.

- **Step 1: Determine the grant framework and allocation**  
As with any other grant, the first steps involve determining the parties eligible for the EPWP Grant as well as the basis for its allocation and distribution.
- **Step 2: Securing commitment from eligible Public Bodies**  
This involves signing the grant agreement and committing to meeting the EPWP targets and requirements.
- **Step 3: EPWP Planning**  
This step outlines how the National Department of Public Works plans to mainstream and guide EPWP planning; and sets out the planning requirements for public bodies.
- **Step 4: Project Implementation and Management**  
The project implementation and management cycle describes the processes involved in disbursement, reporting and technical support for implementation.
- **Step 5: Determine the grant framework and allocation**  
This step briefly describes the midyear performance assessment that assists the National Department of Public Works in determining whether a public body will meet its EPWP target and whether any reprioritisation of the grant allocation is necessary.

Figure 2: EPWP Grant: Implementation Process Flow



## Appendix D.5: EPWP Code of Good Conduct Beneficiary Contract (Page 1/2)

STAATSKOERANT, 18 FEBRUARIE 2011

No. 34032 13

**EXPANDED PUBLIC WORKS PROGRAMMES  
(Standard Contract for Task-rated workers)**

**CONTRACT OF EMPLOYMENT BETWEEN**

**CONTRACTOR**

Name:

Address:

ID:

AND

**WORKER**

Name:

Details

ID:

1. I am pleased to confirm that you have been appointed to work on a task-based employment contract within an Expanded Public Works Programme (EPWP) project. Within this contract you will undertake numerous groups of tasks.
2. This contract must be read in conjunction with the standard terms and conditions of employment on EPWP attached.
3. The project where you will be employed is located at .....
4. The contract will start on .....
5. You must be aware that this contract is a limited-term contract and not a permanent job. The contract may be terminated for one of the following reasons:
  - a) If the contractor does not get additional contracts from the EPWP.
  - b) Funding for the programme in your area comes to an end.
  - c) You repeatedly do not perform in terms of the tasks set out in your work programme.
- 6 You will be employed as a ..... within the team.
- 7 While you are working you will report to .....
- 8 Payment
  - a) You will be paid a fixed amount of R ..... for completing a fixed amount of work.
  - b) The amount of work required for the agreed rate of pay will vary from task to task. You will be informed at the beginning of each task or group of tasks how much work you are expected to complete per day.
  - c) You will only be paid for work completed.
  - d) You will be paid the amount for the number of days quoted in the contract even if you finish the work before the time or after the estimated date of completion.

**Appendix D.5: EPWP Code of Good Conduct Beneficiary Contract (Page 2/2)**

14 No. 34032

GOVERNMENT GAZETTE, 18 FEBRUARY 2011

- e) A contractor must pay you the production bonus (the extra days if the work is finished early) if you have completed your share of tasks.
  - f) The contractor will be paid within 30 days after the work is completed. You will be paid within 5 days of the contractor being paid.
- 9 In addition to the conditions above all the terms and conditions of employment on EPWP apply to your employment. If you breach any of these terms your contract may be terminated.

10 Signatures:

Signed on this day ..... of ..... 20....

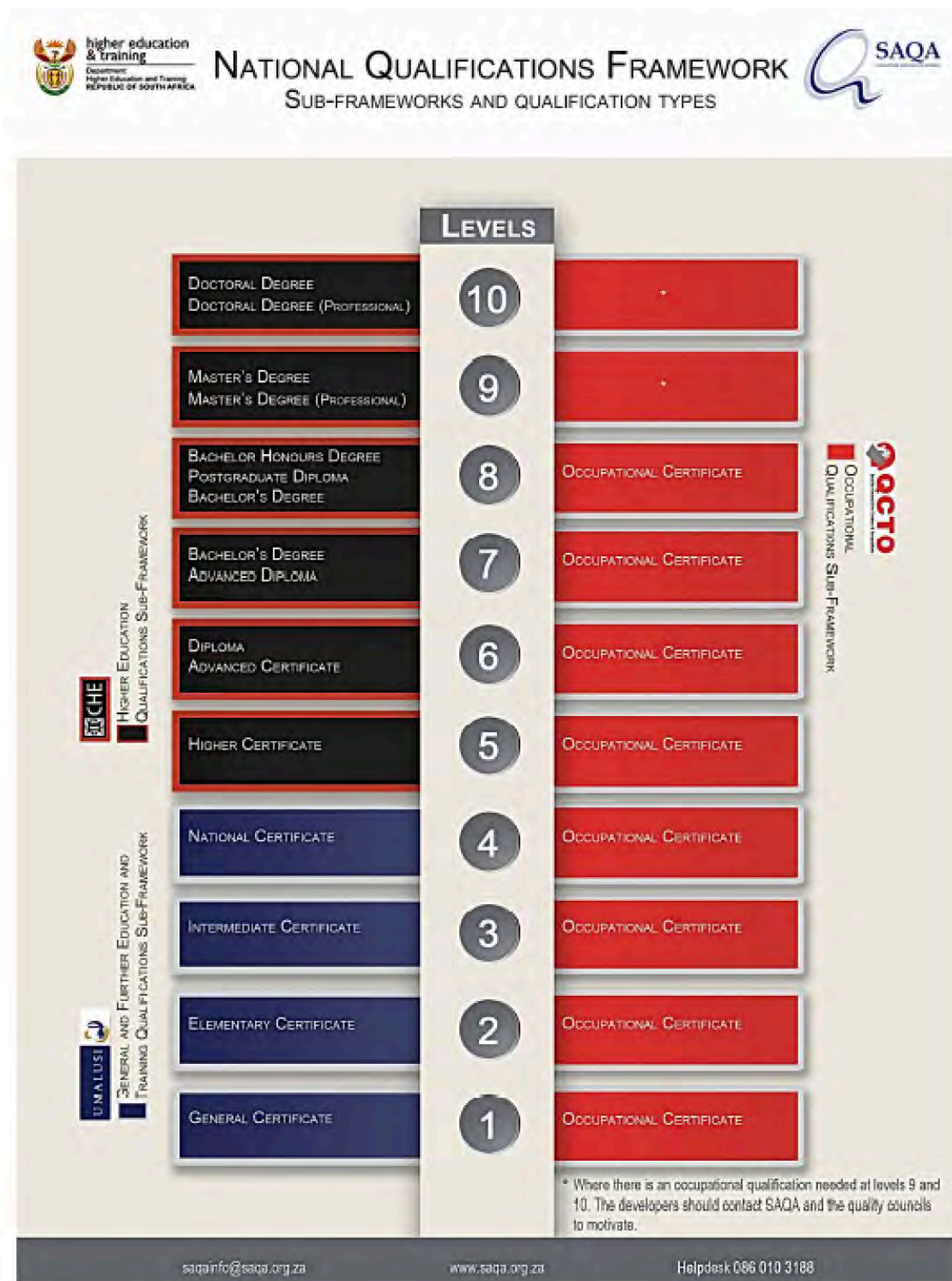
Contractor: ..... Date: .....

Worker: ..... Date: .....

Witness: ..... Date: .....

---

Appendix D.6: National Qualification Framework (from saqa.co.za)





## Appendix E.1: Table of Screened Projects

Project Name	Building Type	Location	Architect	Year
Mbekweni Stonehouses	Housing	Paarl	Vernon Collis and	
Ocean View Stone Houses	Housing	Ocean View Cape Town	Two Think Architects+Etienne Bruwer	2015
Mapungubwe Interpretation Center	Cultural	Mapungubwe Limpopo	Peter Rich Architects	N/A
10x10 Sandbag Houses	Housing	Mitchells Plain Cape Town	MMA Architects	N/A
Empower Shack	Housing	Khayaletsha Cape Town	Urban ThinkTank	2014
Philipi Medical Center	Hospital	Phillip Cape Town	CS Studio	2015
Seven Fountains School	School	Kokstad	East Coast Architects	2009
Red Location Musuem	Cultural	Port Elizabeth	Noero Wolff Architects	N/A
Alexandria Interpretive Center	Cultural	Soweto	Peter Rich Architects	N/A
VPUU Project:	Cultural	Khayaletsha Cape Town	VPUU	N/A
Elliotdale Rural Sustainable Human Settlement Pilot Project	Housing	Tranksei, Easeterm Cape	ACG Architects	N/A
Lufherend Integrated Development	Housing	Soweto	26'10 + Peter Rich	N/A
Namibia Stop 8	Housing	Durban	FEDUP	N/A
Agulhas National Park Rest Camp	Park Accomodatio	Aguilhas National Park	N/A	N/A
Khuboes Guest House, Richterveld	Park Accomodation		N/A	N/A
Smitswinkel Tented Camps	Park Accomodatio	Table Mountain National Park	Makeka Design Lab	N/A
Tankwa Karoo National Park Rest Camps	Park Accomodatio	Tankwa Karoo National Park	N/A	N/A
Lakeside Community Creche	Cultural		Mpethi Morojele	1997
Eastern Cape School Building Program	School	Various Locations	Luyanda Mpahlwa	2013
Pilot Project in Simunye Township, Westonia	Housing	Simunye Township	Anyway Solutions	2006
Mawa Block 08	Housing	Mawa Limpopo		2005

## Appendix F.1: UNESCO Citation (page 1/2)

### Mapungubwe Cultural Landscape

Outstanding Universal Value

<http://whc.unesco.org/en/list/1099/>

#### Brief synthesis

The Mapungubwe Cultural Landscape demonstrates the rise and fall of the first indigenous kingdom in Southern Africa between 900 and 1,300 AD. The core area covers nearly 30,000 ha and is supported by a suggested buffer zone of around 100,000 ha. Within the collectively known Zhizo sites are the remains of three capitals - Schroda; Leopard's Kopje; and the final one located around Mapungubwe hill - and their satellite settlements and lands around the confluence of the Limpopo and the Shashe rivers whose fertility supported a large population within the kingdom.

Mapungubwe's position at the crossing of the north/south and east/west routes in southern Africa also enabled it to control trade, through the East African ports to India and China, and throughout southern Africa. From its hinterland it harvested gold and ivory - commodities in scarce supply elsewhere – and this brought it great wealth as displayed through imports such as Chinese porcelain and Persian glass beads.

This international trade also created a society that was closely linked to ideological adjustments, and changes in architecture and settlement planning. Until its demise at the end of the 13th century AD, Mapungubwe was the most important inland settlement in the African subcontinent and the cultural landscape contains a wealth of information in archaeological sites that records its development. The evidence reveals how trade increased and developed in a pattern influenced by an elite class with a sacred leadership where the king was secluded from the commoners located in the surrounding settlements.

Mapungubwe's demise was brought about by climatic change. During its final two millennia, periods of warmer and wetter conditions suitable for agriculture in the Limpopo/Shashe valley were interspersed with cooler and drier pulses. When rainfall decreased after 1300 AD, the land could no longer sustain a high population using traditional farming methods, and the inhabitants were obliged to disperse. Mapungubwe's position as a power base shifted north to Great Zimbabwe and, later, Khami.

The remains of this famous kingdom, when viewed against the present day fauna and flora, and the geo-morphological formations of the Limpopo/Shashe confluence, create an impressive cultural landscape of universal significance.

**Criterion (ii):** The Mapungubwe Cultural Landscape contains evidence for an important interchange of human values that led to far-reaching cultural and social changes in Southern Africa between AD 900 and 1300.

**Criterion (iii):** The remains in the Mapungubwe Cultural Landscape are a remarkably complete testimony to the growth and subsequent decline of the Mapungubwe State which at its height was the largest kingdom in the African subcontinent.

**Criterion (iv):** The establishment of Mapungubwe as a powerful state trading through the East African ports with Arabia and India was a significant stage in the history of the African subcontinent.

**Criterion (v):** The remains in the Mapungubwe cultural landscape graphically illustrate the impact of climate change and record the growth and then decline of the Kingdom of Mapungubwe as a clear record of a culture that became vulnerable to irreversible change.

#### Integrity

All remains of the main settlements are in the nominated property, as are all major phases of the Mapungubwe kingdoms' development and decline. The property contains substantial areas of virtually untouched cultural landscape of very high quality but, pending their decommissioning, these are separated by some areas of modern citrus plantations and circular irrigated agricultural

### **Appendix F.1: UNESCO Citation (page 2/2)**

fields in private ownership.

The considerable agricultural enterprise of the final phase at Mapungubwe has vanished. Although much of the core landscape has returned to its unimproved state with wild grazing game animals, the recent opening up of the property to big game, especially elephants needs to be considered, and is being monitored.

The Messina area is a rich mining area and the diamond mining operations at Riedel (small scale) and Venetia (major operation) could have a potential impact on the property. There is also a possibility that deposits of other valuable minerals may yet be found. With mining rights being recently returned to the State, better future control was anticipated but the granting of a mining licence for coal 5 km from the boundary of the property, in a highly sensitive area adjacent to the Limpopo river and in the proposed buffer zone that was submitted at the time of the inscription, is a considerable threat.

The integrity of the site has been affected by the standard of the excavations in the 1930s which it could be argued led to valuable evidence being lost – and thus the completeness of the site, in both physical and intellectual terms has been compromised.

#### **Authenticity**

The nominated property and buffer zone have largely not been subjected to any destructive form of human intervention since the remains were abandoned, and the current agricultural activities have not had a major impact on the cultural landscape in terms of its ability to convey its value. However there is a need to ensure that old excavations are not eroded by climatic forces or by uncontrolled visitors.

#### **Protection and management requirements**

The Mapungubwe site and the buffer zone are legally protected through the National Heritage Resources Act (No 25 of 1999), the World Heritage Convention Act (No 43 of 1999) and the National Environmental Management Act (No 73 of 1989).

The property is also recognized as a protected area in terms of the National Environmental Management Protected Areas, 2003 (Act 57 of 2003). This legislation implies that mining or prospecting will be completely prohibited from taking place within the property and the buffer zone. Furthermore, any development with a potential impact on the property will be subjected to an environmental impact assessment.

SANParks is the management authority for the property and provides overall management involving coordinating government and local community efforts to conserve the site. SANParks is currently updating the Integrated Management Plan. Regular consultative meetings with stakeholders and local communities take place on the site through the park forum and by other means of engagement.

A Trilateral Memorandum of Understanding is also being drawn up with the objective of establishing the Limpopo-Shashe Transfrontier Conservation Area (TFCA). This very extensive area of 5,040 km<sup>2</sup> will, when established, constitute an effective buffer zone. It is intended that each participating country will concentrate on one facet of protection: cultural heritage in South Africa; wildlife in Botswana; and living cultures in Zimbabwe.

To help guarantee long-term protection for the property there is a need to complete the Integrated Management Plan and to submit the buffer zone for approval by the World Heritage Committee. There is also a need to ensure that any consideration of mining licences is in line with the recommendations of the Technical Workshop on World Heritage and Mining adopted at the 24th session of the World Heritage Committee, to ensure that mining does not constitute a threat to the property, its buffer zone or its wider setting

## Appendix F.2: Architectural Competition Announcement (Page 1/2)



Address: P O Box 787, PRETORIA, 0001

Tel: +27 (012) 426 5132

Fax: +27 (012) 426 5522

E-mail: [pierrevd@sanparks.org](mailto:pierrevd@sanparks.org)

27 July 2005

### MAPUNGUBWE INTERPRETIVE CENTRE – ARCHITECTURAL COMPETITION

Dear Competitors

Herewith the basic guidelines and format for the presentation of your proposed design in terms of the brief given to for the Interpretive Centre at Mapungubwe National Park.

The Guidelines for evaluation will be based on these three disciplines:

- **Firmness (Structure)**
  - Simplicity of the structure
  - Job creation (must be labour intensive)
  - Details
  - Type of Construction materials
  - Building Regulations
- **Commodity (Function)**
  - Sustainability
  - Functionality
  - Display Strategy
  - Storyline
  - Services
- **Delight (Experience)**
  - Aesthetics
  - Context
  - SANParks Image

The Presentation Format must be based on the following guidelines:

- A maximum of ten (10) A3 sheets may be used for your presentation which must include your:
  - Site plan
  - Architectural Impression
  - Basic Layouts, Sections & Elevations
  - Explanatory Drawings
  - Aerial view
- All drawings to be done on a 1: 200 Scale

---

**South African National Parks:** Addo Elephant, Agulhas, Augrabies, Bontebok, Cape Peninsula, Golden Gate Highlands, Kgalagadi Transfrontier, Karoo, Knysna, Kruger, Marakele, Mountain Zebra, Namaqua, Richtersveld, Tankwa Karoo, Tsitsikamma, Vaalbos, Vhembe Dongola, West Coast, Wilderness



## Appendix F.2: Architectural Competition Announcement (Page 2/2)

- 2 -

- All drawings to be Landscape (horizontal)

### **Presentation**

- Verbal with drawings or PowerPoint presentation.
- A CD with your design must be made available at the presentation for evaluation purposes.
- One hour will be allocated to each contestant for the presentation. (15 minutes will be allocated at the start for the erection of your presentation a maximum talk time of 15 minutes; the rest of the hour will be allocated to view the presentation and time for questions).

The presentation is scheduled to take place at SANParks Head Quarters in Groenkloof Pretoria on the 13<sup>th</sup> of September 2005 starting at 09:00. You will be advised closer to the date of the exact time that you will be expected to start with your presentation.

Competitors are reminded that this is a conceptual design and the budget must be taken into consideration with the indication of possible future expansion of the design.

If there are any problems regarding the information please contact me ASAP.

Kind regards

Pierre van Dalen  
Regional Project Manager: SANParks Poverty Relief Unit  
Tel: 012 - 426 5132  
Fax: 012 - 426 5522  
Cell: 082 874 8721

## Appendix F.3: Architectural Competition Programme (Page 1/10)



1

SOUTH AFRICAN NATIONAL PARKS  
NEW INTERPRETIVE CENTRE AND AMENITIES AT MAPUNGUBWE NATIONAL PARK AND  
WORLD HERITAGE SITE

THE MAPUNGUBWE PROJECT

MAPUNGUBWE NATIONAL PARK & WORLD HERITAGE SITE

INTERPRETIVE CENTRE COMPLEX

GENERAL OVERVIEW

1 BACKGROUND

1.1 Document purpose

- To initiate the planning process for the establishment of an Interpretive Centre Complex for the park as part of the overall Interpretive Plan, in support of the Tourism and Conservation Education Planning Process.
- To list existing ideas, concepts and even principles that has emerged from various sources thus far.
- To create an opportunity for stakeholders to participate in, and add value to the project.
- To form a baseline document to communicate with planners, decision makers, potential funders and other stakeholders.

1.2 Interpretive Planning as part of the park planning process: Definitions, principles and policy statements

- Interpretive Planning is the strategic process which, in its implementation, achieves management objectives for interpretation and education by facilitating meaningful connections between visitors, neighbouring communities and park resources.
- It comprehensively analyses all interpretive needs and determines a wide array of interpretive services, facilities and programmes to communicate in the most efficient and effective way the park's purpose, significance and themes. In short, Interpretive Planning identifies key visitor experiences, and recommends ways to facilitate and enhance them.
- An effective Interpretive and Education Plan will establish a balance of in-park and outreach interpretive services, based upon criteria such as park significance, themes, levels and types of visitor use, the nature of park resources, and park management goals.
- The outcome of Interpretation is effective communication of the park's story in a larger context, but also, the ideas, meanings and values associated with the resources themselves, and achieving the balance between resource protection and visitor use and enjoyment.

## Appendix F.3: Architectural Competition Programme (Page 2/10)

2

Not only does Mapungubwe National Park offer the unique opportunity to reconstruct natural and cultural history from 2 million years ago – but also the contextual detail of e.g. the river, the sandstone ridges, the baobabs and the Mapungubwe Golden Rhino.

- Interpretive planning – like the programmes themselves – should be flexible, ongoing, interdisciplinary, responsive to client needs, and management-orientated.
- This process should also extend beyond park boundaries – it should allow for concessions and co-operating associations as well as local communities, regional partnerships, experts and subscribes to principles of sustainability.
- Interpretation should be based on current research – both in terms of content and technique/methodology. Decisions regarding interpretive services are rooted in solid subject matter expertise, and reflect knowledge of visitor expectations, demographics, changing social trends and needs. It will draw upon current educational philosophy in programme planning.
- Park interpretation should support management to pursue the financial sustainability principle by serving the paying client and enhancing the park experience.

### 1.3 The importance or distinctiveness of Mapungubwe National Park and World Heritage Site and its unique resources

- The park comprises a unique representative cultural and natural landscape with attributes that elevates it to a level of national and even international significance.

- As far back as the early 1900's this area was identified as worthy of conservation – Jan Smuts declared the Dongola Botanical Reserve, which was later deproclaimed.
- SANParks is privileged to again be involved in taking up the task to establish the Mapungubwe National Park at the Limpopo/Shashe confluence, to protect the threatened Limpopo Floodplain System, riverine forest, sandstone belt and associated biodiversity elements.
- The well-known Mapungubwe Archaeological Sites (origin of the Golden Rhino) are part of the conservation objectives of the park, together with a unique array of rock art sites, rock engravings and fossil sites.

- Because of its location, the park will form the core of the Limpopo/Shashe Transfrontier Conservation Area. This initiative is already underway in collaboration with the Botswana and Zimbabwe governments.
- The park was declared as a World Heritage Site in July 2003.
- The larger area has been identified by the RSA Government, in partnership with the Limpopo Province as SDI (Spatial Development Initiative). This will earmark the region for investment from various sources to stimulate regional development via conservation and tourism.
- All these initiatives are being co-managed by SANParks on a public-private-community partnership basis in order to ensure sustainable ripple-effect benefits.
- SANParks believes that the Mapungubwe National Park has a responsibility and opportunity through Interpretive Planning, to embark on a goal-driven process that determines appropriate means to achieve desired visitor experiences and provide opportunities for audiences to form their own intellectual and emotional connections with meaning/significance inherent in the resources, while protecting and preserving those resources.

## Appendix F.3: Architectural Competition Programme (Page 3/10)

3

The Mapungubwe Project has a unique story to tell. It is the story of securing and interpreting the Limpopo/Shashe Confluence Area with its cultural and biodiversity assets for future generations.

Those very resources have all the elements to grip the imagination:

The Mapungubwe archaeological sites, the collection of excavated cultural artefacts, the rock art and fossil sites, the linked intangibles of myth and legend, indigenous knowledge, history and conflict. Added to that: The Big 5 against a backdrop of rivers, floodplain plus wetlands, sandstone ridges and associated vegetation.

Furthermore, the establishment of the TFCA and the World Heritage Site will create a destination which should bring ample dividends to the investors and the region.

However, the key lies in the quality of the experience, the safety of the destination and the unlocking of the resources.

#### MAPUNGUBWE INTERPRETIVE CENTRE AND PARK HEADQUARTERS COMPLEX

##### 2.1 Background

Case studies from Southern Africa and overseas have revealed that archaeological sites with little or no visible structures are neither easy to interpret, nor exciting to experience. On the other hand, excavations and recovered artefacts (or "treasures") do grip the imagination – especially if it is gold, associated with pre-history, forgotten cultures and untold stories. It is therefore essential that the Mapungubwe Archaeological Sites – which will be a major draw card for the park – be supported by a professional personal interpretive service as well as an Interpretive Centre, where artefacts and modern display techniques could support and enhance the experience. It is envisaged that the centre should provide an introductory and orientation function, as well as an in-depth informative one.

It is accepted that the closer the display can be to the actual sites, the better, but artefact security and tourist flow with regards to the park should be considered in terms of infrastructure. General park interpretation is also accepted as feasible and necessary – integrating natural and cultural features. After considerable effort regarding case study research, consultation and site visits, the following is proposed:

- An Interpretative Centre with the following elements (as a major component of the general park interpretive programme):
  - Reception/information desk
  - Display and inter-active exhibit area
  - Activity room cum lecture and training facility
  - Open-air facility for cultural/traditional events
  - Staff/administrative facilities and housing
  - Arts and crafts outlet
  - Refreshments/food outlet
  - Research facility for integrated cultural and wildlife management support for the park, TFCA, WHS, Limpopo Province and communities.  
(Library, labs, cultural documentation and curation facility, technical support – GIS, herbarium, reference museum, visiting scientist accommodation).

**Appendix F.3: Architectural Competition Programme (Page 4/10)**

4

**2.2 APPROACH:**

- Interpretive Centre: Modular, inter-active, world class, general to detail by choice.
- Integrated and multi-disciplinary – cultural and biodiversity management and conservation education for Mapungubwe National park, TFCA and World Heritage Site.
- Because the Centre should be the focal point of the park, it should be part of the park's headquarters and administrative support base.
- The Interpretative Centre should be supported by a multi-disciplinary Resource Research and Training Facility, in collaboration with partners and preferably based on income-generating principles.

**2 CONCEPT****2.1 Background:**

It is accepted that the Interpretive Centre should be located at the most functional and strategic location in the park, and linked to the most practical and necessary support systems the park can provide. The park is at the present moment rounding off a tourism infrastructure network via Poverty Relief investment (fencing, spine road network, day visitor amenities and overnight facilities) and funding for the Interpretive Centre/Park HQ complex is part of this programme. The project has been accepted and approved by the Poverty Relief consultation process, as well as the park's existing stakeholder groupings.

**2.2 Objectives:**

The purpose of this section of the proposal is to:

- Communicate with stakeholders and partners regarding the basic concept and details of an Interpretive Centre/Park HQ complex.
- Develop details of the infrastructure development in order to steer planning and execution.
- Confirm internal and external support for the project, and to secure additional funding on the basis of public-private-community partnerships.

**2.3 Strategic decisions:**

- An Interpretive Centre is an appropriate and necessary component of a Park Interpretive Programme in support of tourism and multi-disciplinary conservation education, as well as community involvement.
- Because this Interpretive Programme is supportive of and enhancing resource management as core business, the development and maintenance of this service should be part of the park's mainstream business (not a temporary or "nice-to-have" function).
- Because the Interpretive Centre should be the focal point of unlocking the park's resources, it only makes sense that it should be located at the main tourist distribution point, and supported by park administrative systems – hence the combination of Interpretive Centre/park HQ Facility. It is accepted that the management of the park itself, the World Heritage Site and its strategic location as future TFCA component, should be supported by appropriate administrative structures housed in adequate facilities in the form of an HQ complex.

### Appendix F.3: Architectural Competition Programme (Page 5/10)

5

- The fact that Mapungubwe National Park forms the core of the TFCA and World Heritage Site, and its attributes cover both biodiversity and cultural fields, it presents an opportunity to plan for the future.
- The Mapungubwe Project is already an icon on national and even international level, drawing attention from political, traditional, academic and private sectors.

#### DETAILED DESIGN REQUIREMENTS

South African National Parks, as the implementer of a DEAT-funded 'Expanded Public Works Programme' project, requires the services of architects to design a new Interpretive Centre and amenities at Mapungubwe National Park and World Heritage Site. This document sets out SANParks expectations of the appointed architect and the constraints pertaining to their work.

##### General requirements

- design a site layout at the new Interpretive Centre, to include traffic management, parking and hard/soft landscaping
- design a Interpretive Centre on the indicated site,
- design Commercial Facilities for visitors at the Interpretive Centre
- design Park Administration Facilities at the Interpretive Centre
- design a Resource Centre & Research Facility
- Provide concept drawings for relation to the competition rules
- Provide draft working drawings and specifications in accordance with the competition rules.
- Provide final working drawings and specifications with reference to the competition adjudication and successful appointment architect.

##### Specific requirements.

1. Interpretive Centre and Complex World-class Interpretive Centre to orientate all audiences regarding the Mapungubwe Landscape (cultural and natural). The Centre must be able to display interpret the Mapungubwe Archaeological Collection and should include the following integrated features. (The competition participants must consult with the SA Heritage Agency, Wits and Tukkies Archaeological Schools)
  - 1.1. Information and Reception area (40m<sup>2</sup>)
    - 1.1.1. A service counter with workstations for 2 staff & a drop-in safe?
    - 1.1.2. Space for up to 10 - 15 persons waiting; tourist information?
  - 1.2. An interpretive display area (300m<sup>2</sup>) displays, artefacts, maps etc interpreting the Park's natural and cultural heritage and interactions with local communities.
  - 1.3. A storage space (16m<sup>2</sup>) to store
    - 1.3.1. Snacks, drinks, souvenirs, postcards, books, maps etc?
    - 1.3.2. Liquor, wines & cigarettes?
  - 1.4. Administrative and Interpretation offices (to be designed in a manner to allow for phased development if necessary) (34m<sup>2</sup>)
    - 1.4.1. Tourism office, open plan to reception?
    - 1.4.2. Staff kitchenette area with fridge, sink, kettle etc.?
    - 1.4.3. Open-plan office space with 3 workstations?

## Appendix F.3: Architectural Competition Programme (Page 6/10)

6

- 1.5. Toilets (60m<sup>2</sup>)
    - 1.5.1. Toilets 14 x 4?
    - 1.5.2. For Staff and Visitors?
  - 1.6. Access control  
Indicate pedestrian and vehicle access to the infrastructure
  - 1.7. 'Hard' Landscaping  
Parking, turning, waiting, dropping-off space<sup>1</sup> for:
    - 1.7.1. Up to six Park / staff vehicles (not in front of building)
    - 1.7.2. Two coaches (not in front of building)
    - 1.7.3. Two "car plus caravan/trailer" spaces
    - 1.7.4. Delivery/drop-off point for deliveries (could be one of 1.7.2)
    - 1.7.5. Parking area 700m<sup>2</sup>
    - 1.7.6. One wider parking for wheelchair users
  - 1.8. 'Soft' Landscaping  
Architects to indicate planting, water features etc on site plan, with assistance from SANParks.
  - 1.9. Transformer Shelter  
Provision to be made for step-up transformer (approx. 4m<sup>2</sup>)
  2. Commercial Sustain traditional material culture of neighbouring communities via arts & crafts. Commercial partnerships.
    - 2.1. Arts and Crafts (Community SMME) (60m<sup>2</sup>)
      - 2.1.1 Amount of stalls
      - 2.1.2 Kitchenette
      - 2.1.3 Shelves, Tables
      - 2.1.4 Ablutions
    - 2.2. Shop and Food outlet (SMME/Concession) (70m<sup>2</sup>)
      - 2.2.1 Fridges?
      - 2.2.2 Shelves?
      - 2.2.3 Open / Closed kitchen
      - 2.2.4 Kitchen area with sink, fridge, plug-in stove, kettle, toaster, drawers for cutlery and cupboards for crockery, etc.
    - 2.3. Store room (32m<sup>2</sup>)
      - 2.3.1 Shelves?
      - 2.3.2 Chemicals?
      - 2.3.3 Door type & Ventilation?
  - 3 Park Administration Infrastructure to support Park Management (including TFCA & WHS management)
    - 3.1 Office x 4 (80m<sup>2</sup>)
      - 3.1.1 Park Manager
      - 3.1.2 CRM
-

## Appendix F.3: Architectural Competition Programme (Page 7/10)

7

- 3.1.3 Wildlife Management
- 3.1.4 Tourism
- 3.1.5 Toilets
- 3.2 Safe (10m²)
  - 3.2.1 Fixed to?
  - 3.2.2 Specs?
- 3.3 Admin/Store room (16m²)
  - 3.3.1 Shelves?
  - 3.3.2 Ventilation?
- 4 Surrounding Area
  - 4.1 Cultural Event and Day Visitors Area (Parking (500m²) and ablutions (60m²))
    - The entire area may be fenced by stone walls or a wall made of raw wood (mupfunda). A stone wall may be ideal and also easy to maintain.
    - The area may be stamped and paved using clay soil and decorated by using cow dung.
    - A small gate made of wood (tswingoni) which leads into an open area: we may use this area for crafters or local arts and crafts.
    - The next structure may be khoroni a bid entertainment area for traditional dances and public viewing. This could be a circular structure fenced by maguvha – half wall with one entrance decorated by local women using clay soil. For the sake of weather we could have a semi-circle thatch roof only covering an area where people can sit. This could be built as a three level stepped sitting place, also just paved using clay soil. The rest of the area may be used by dancers.
    - Outside this venue could be an area for traditional games: a single hole is for ndode (normally played by girls) and 48 to 24 hole is Mufuvha – played by boys and men. Some of these are still evident at Mapungubwe. This may be very useful both for educational and tourism purposes.
    - A large kitchen (tshamudane) may be necessary for individuals and groups to prepare their food (for three legged pots). Braai facilities may be elsewhere.
    - Some other thatch huts may be built to accommodate crafters during bad weather or eating places for traditional leaders.
  - 4.2 Mapungubwe Valley Viewpoint and Walkway (Interpretive Signage (300m length) & Hands-on Archaeological Site (Interpretive signage and model))
- 5 Services
  - 5.1 Water reticulation
  - 5.2 Sewage System
  - 5.3 Electrical
  - 5.4 Communication
- 6 Financial aspects
  - 6.1 The budget for the Interpretive Centre complex and amenities (excluding furniture, services to the building and VAT) amounts to R 8,976,688.00
- 7 Miscellaneous
  - 7.1 All design features, materials and construction methods must be in accordance with “sustainable development” principles, and afford *Universal Access* to persons with special needs. (Details on request) (Disabilities)



### Appendix F.3: Architectural Competition Programme (Page 8/10)

8

- 7.2 The design of the building should be such that the construction methods should maximize the use of labour, job creation and skills development.
- 7.3 Low maintenance equipment and structures, with durable natural materials and finishes to be used as far as possible throughout.
- 7.4 Services & reticulation & roads will be designed and supervised by SANParks.
- 7.5 Drawings and specifications should be fully detailed so that the Quantity Surveyor can measure and quantify for the purpose of a Bills of Quantities and minimise variations during the construction phase.
- 7.6 Redesigning and changing of essential details during the construction phase will not be permitted and any costs associated with these types of variations will be charged to the responsible party.

#### SUBMISSION REQUIREMENTS

- Drawings
- Models
- Scale
- Explanatory Drawings
- Gross Area or Volume Tabulation
- Method of Presentation
- Anonymity

## Appendix F.3: Architectural Competition Programme (Page 9/10)

9

### ADDITIONAL INFORMATION

#### MAPUNGUBWE NATIONAL PARK AND WORLD HERITAGE SITE INTERPRETIVE CENTRE

#### GUIDELINES: ARCHITECT AND EXHIBIT DESIGNER'S BRIEF J Verhoef

- MAIN OBJECTIVE

Presenting the Mapungubwe Landscape – telling the story  
Guided by the PARK/LANDSCAPE INTERPRETIVE PLAN

STORYLINE: MAN AND ENVIRONMENT  
CULTURAL AND NATURAL ELEMENTS INTEGRATED

- KEY ISSUES

- Who's voice
  - Nature Conservationists
  - Archaeologists/Historians
  - Reconstructed history
  - Stakeholders
- To whom are we talking (market research on visitors/audiences)
- Putting a roof over the story and story-telling components
- Visiting the park should provide for a logical sequence of arrival – general information – specific information/communication – experience (site visits, etc.) – revisit of centre (and hopefully revisit the park).

INTERPRETIVE/EDUCATIONAL PLAN  
PARK, WORLD HERITAGE SITE AND TFCA

- Holistic approach
  - Integrating cultural and biophysical features (man and environment over time)
- Providing for the larger landscape. (The bigger picture: from sites and species to Park to Transfrontier Park to region, to World Heritage Site, etc.)

- KEY ISSUES – RE : LINKED FACILITIES

### Appendix F.3: Architectural Competition Programme (Page 10/10)

10

- Interpretive Centre in relation to:
  - Visitor centre with shop, cafeteria, auditorium, etc.
  - Research facility (work and overnight, storage, library, herbarium, etc.)
  - Park administration (manager and staff)
  - Rest camp and other products/experiences
  - Museum (curating component – full artefact collection or parts, security and conservation, storage, etc.)
- Floor space and cost implications
- Integration of this facility with park, TFCA, World Heritage Site and other needs, contexts and linkages
- OTHER ISSUES
- Way forward
  - Project team
  - Partners and co-ordination
  - Time frames and budget
  - Standards, design challenges, etc.

## Appendix F.4: SA Digest Excerpt (Page 1/2)

Peter Rich

## BOPITIKELO COMMUNITY CENTRE



## 4 Community rural projects after 1994

Intatha Conference Centre  
 Bopitikele Community and Cultural Centre  
 Bwanari Lodge  
 Sibonke Institute  
 Lekgophung SMME (Small Medium Micro Enterprise)  
 Makuleke Cultural Project  
 Hydratorm Headquarters  
 Melville Koppies Environmental Centre

Political change and the establishment of a democracy in South Africa in 1994 allowed Rich to engage in a series of important cultural heritage projects. All of these were initiated by the South African government, using multilateral funding, and were part of several cultural tourism initiatives to battle poverty and heal the deep wounds of apartheid. Rich's previous work among the Ndebele and the Bantwana put him in a unique position as a professional architect and he was employed as a technical advisor on rural development initiatives that were designed to empower communities.

One such initiative was based in the Tswana region around Mafikeng in the North West Province. Rich was an integral part of what became a textbook case of community consultation that resulted in a series of projects: a community-owned lodge (Bwanari Lodge), a brick-making cooperative at Lekgophung,

and a community building in Molatedi village.

Bopitikele was conceived as a multi-use building – a meeting place and a centre for the reinvigoration of the cultural history of a people who had been largely divested of their traditions through disruption by the colonial and apartheid regimes. It fulfilled the need for a venue for community and social functions, a place facilitating dialogue between local communities and visitors from elsewhere in southern Africa and abroad, a place of reconciliation.

In 1997, Rich was engaged as a technical advisor to a rural livelihoods programme service provider to work as facilitator and architect for a displaced Shangaan community at Makuleke village, situated at the border of the Kruger National Park in the Pafuri region. After their forced removal under apartheid, the community had finally been allowed to return to their homeland, an area rich in wildlife and adjacent to a major tourist destination. A craft centre and lodge project formed part of a new cultural tourism initiative based on local values and traditions, offering an effective and sustainable base for community economic empowerment.

On all of these projects locally sourced materials, skills and labour were used: gum poles for structure, thatch for the roof coverings, and locally gathered stone or soil bricks (made using Hydratorm presses) for walls. This adoption of local, common-sense technologies meant not only that architectural interventions were sustainable but that they also engaged and empowered local communities.

## Appendix F.4: SA Digest Excerpt (Page 2/2)

Peter Rich



### Strategies, Building Dynamically: Past - Present - Future

6 Community township projects after 1994  
 Ubuhle Buyeze Children's Centre  
 River Park Housing  
 Alexandra and Soweto Increased-density Housing  
 Alexandra Interpretation Centre

Throughout his career, Rich has actively engaged with township communities. He sees his role as going beyond that of the architect to embrace activism and to help facilitate change and development within communities.

The Ubuhle Buyeze Children's Centre in Thulamwana (1997) came about as the result of a sudden forced community upheaval. As co-director of the UNESCO-led Growing up in Cities project, Rich was involved in facilitating participatory projects in the Canaanland squatter camp in central Johannesburg. Art workshops were held with local children to illustrate how their environment might be improved. During the course of the project, the entire community was forcibly removed from their homes and dumped on land thirty-eight kilometres outside the city.

The Children's Centre was conceived as a catalyst to force the majority to engage with the new community and act on promises he had made under the 1991 Children's Charter. The Centre was constructed from stacked disused shipping containers and clad with timber-slatted screens, creating much-needed learning spaces, community facilities and play areas.

The Johannesburg Metro approached Rich to do a model village on land already set aside for a Reconstruction and Development Programme (RDP) housing development (River Park Housing). In contrast to the usual RDP model of high-density, single-storey housing (rolled out across the country in huge volumes) the model village proposed (within tight budgetary constraints) double-storey structures with maximum volume that would allow for additions, alterations and improvements to the structure by the owners over time. In order to facilitate social cohesion and create safe neighbourhoods, Rich also proposed strongly defined and active street edges. Lessons learned from the traditional local organisation of outdoor social space informed the articulation of the external spaces in this project.

The ambitious Alexandra Renewal Project was initiated in 2000 by the government. Its primary objectives were community-building and poverty relief through training in tourism

and heritage, nurturing small enterprises, and showcasing arts, culture, heritage and the environment of Alexandra township.

Rich was employed as part of the Heritage Agency team, and was involved in an ambitious process of mapping the oral heritage of the area.

Out of respect for the elders of this society as custodians of history and knowledge, a team comprising local residents was trained to follow up and develop the themes that emerged from consultation. This groundbreaking work – which proposed a new strategic tourism master plan and route – resulted in amendments to national heritage policy that for the first time took cognisance of indigenous African cultural values.

Part of this study focused on a precinct named Mandela's Yard, which had been home to Nelson Mandela in 1942. The importance of Mandela's Yard was marked through granting the site conservation status and the development of a new building, the Alexandra Interpretation Centre. The Centre, still unfinished, will contain a museum in which the history of Alexandra will be archived. Local and international visitors will be able to access information from computers in the exhibition space and the community archive areas.

The primary volume of the building, the exhibition hall, bridges over and celebrates the street. Two important new civic spaces are defined at ground level, lined with new public facilities and shops. The language of the building celebrates the contradiction between the densely populated township's seemingly ad hoc aesthetic and its highly considered spatial ordering. The building fabric is conceived as a steel framework, in-filled with a collage of contrasting materials inspired by the vital colours and textures of the surroundings. Soil bricks, metal, and coloured polycarbonate sheeting are combined to create an effect the locals refer to as 'jazz architecture'.

The project has experienced irregular funding, and has been restarted several times, each time with a different agenda. This has served to accentuate the notion of building as process. Parts of the Centre will not be used as originally anticipated, but this means that the open-endedness of the original concept is given substance through discontinuity. Thus the architectural form is driven by the multiple narratives that it houses and celebrates. It is an architecture choreographed by the architectural team, yet written and performed by the inhabitants of Alexandra.

## Appendix F.5: Sample Critical Path Timeline

Critical Path of Works		Week Starting														
		7	14	21	28	4	11	18	25	1	8	15	22	29		
		July				August				September						
<b>Northern Building Vaults</b>																
Digital Exhibition																
Cooling Plant																
Interior Lecturn																
Cairn 2 Low dome	done															
Cairn 2 high dome																
Museum vault 1																
Museum vault 2																
Museum large vault																
Cairn 3 Dome																
<b>Concrete Work for Vaults</b>																
L-Beams digital exhibition																
L-Beams cooling plant																
L-Beams Interior Lecturn																
Cairn 2 Ring beam Low Dome	done															
Cairn 2 Ring beam High dome																
Buttresses for double vault																
Buttress Large Vault																
Cairn 3 Ring beam																
<b>Concrete Work</b>																
Digital exhibition floor	done															
cooling plant floor	done															
Interior Lecturn Floor																
Cairn 2 First Floor																
Ramp around cairn 2																
Ramp around Cairn 3																
Gasket 1																
Gasket 2																
Storeroom floor																
Carin 3 floor																
<b>Brickwork</b>																
Curved retaining wall																
Cairn 3																
cairn 2																
Walls on level 3750																
Curved staircase																
<b>Southern Building Vaults</b>																
Craftshop																
Restaurant																
Kitchen																
Staff W/C																
Cairn 1 dome																
Large Vault																
<b>Concrete work for vaults</b>																
L-beams for Craftshop	done															
L-Beams for restaurant	done															
L-Beams for kitchen	done															
L-Beams for Staff W/C	done															
Ring Beam for cairn 1																
Buttresses																
<b>Concrete Work</b>																
Craftshop and restaurant roof																
Kitchen roof																
staff W/C roof																
Cairn 1 triangle bits of roof																
Public Ablutions roof																
information roof																
<b>SANParks Office Vaults</b>																
Half dome 1																
Half dome2																
Staircase																
<b>Concrete work for vaults</b>																
Beams dome 1																
Beams dome 2																

## Appendix G.1: Housing Subsidy Types (Page 1/2)

Human Settlement Demand Profile – City of Cape town Metropolitan Municipality 2015

Tenure status and related housing programmes	Monthly household income (Rands)						
	0 - 800	801 - 1 500	1 501 - 3 500	3 501 - 7 500	7 501 - 11 500	11 501 – 15 000	>15 001
Owned							
State-subsidised housing	x	x	x				
Supply & credit gap				x			
Finance Linked Individual Subsidy Programme (FLISP)				x	x	x	
Credit gap					x		
Non-qualifiers (owners)	x	x	x	x	x		
Bonded							x
Rental							
Community Residential Units (CRU)		x	x				
Social Housing			x	x			
Non-qualifiers (rental)	x	x	x	x			
Normal rental					x	x	x

Table 16: Housing market segmentation

Source: Own assessment based on literature and stakeholder engagements

The nature of these categories is explained in **Error! Reference source not found..**

Tenure status and related housing programmes	
Owned	
State-subsidised housing	State housing finance mechanisms for households earning below R3 500/month.
Supply & credit gap	The Housing Market Segments Report identified a supply and credit gap in the R3 500-R 7500 income bracket. This means the market is unwilling or unable to supply a product that could be afforded by households in this bracket, even if they were able to access credit and the FLISP subsidy.
Finance Linked Individual Subsidy Programme (FLISP)	For households earning between R3 500 and R15 000/month, the FLISP programme is available. However, not all households within the FLISP income band are able to access it due to the lending limit (household income of R11 500). Such households then represent part of the 'gap' market whose needs are partially being met through Financial Sector Charter loans.
Credit gap	The housing market segment report identified a credit gap in the R7 500-R11 500 income bracket indicating that 60% of households in this bracket would be unable to access the credit required as a condition of the FLISP subsidy.
Non-qualifiers (owners)	While there are a number of programmes which households can access to meet their demand, there are also notable limitations to their capacity to access such opportunities. If a household does not meet the qualification criteria of state-funding or those of lending institutions, they fall into a category of 'non-qualifiers'. It is inferred, on the basis of the literature reviewed, that many of these non-qualifiers are reverting to residence in informal dwellings (such as shacks or traditional housing) to meet their demand. Some such non-qualifiers include, but are not limited to, non-South African citizens or parties who may have previously

## Appendix G.1: Housing Subsidy Types (Page 2/2)

Human Settlement Demand Profile – City of Cape town Metropolitan Municipality 2015

	benefited from state housing programmes.
<b>Bonded</b>	Beyond an income of R15 000 households are expected to revert to the bonded market.
<b>Rental</b>	
<b>Community Residential Units (CRU)</b>	State housing programmes for households earning between R800 and R3 500/month.
<b>Social Housing</b>	State housing programmes for households earning between R1 500-R7 500/month.
<b>Non-qualifiers (rental)</b>	While there are a number of programmes which households can access to meet their demand, there are also notable limitations to their capacity to access such opportunities. If a household does not meet the qualification criteria of state-funding or those of rental institutions or landlords, they fall into a category of 'non-qualifiers'. It is inferred, on the basis of the literature reviewed, that many of these non-qualifiers are reverting to residence in informal dwellings (such as shacks or traditional housing) to meet their demand. Some such non-qualifiers include, but are not limited to, non-South African citizens or parties who may have previously benefited from state housing programmes.
<b>Normal rental</b>	It is still not fully clear what the income band boundary between the non-qualifier and normal rental markets are but it is assumed these overlap partially at an income of R7 500/month.

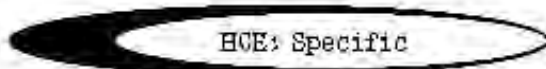
Table 17: Housing market segmentation descriptions

Source: Own assessment based on literature and stakeholder engagements





## Appendix G.2: Support Organization Infographic



**The Support Organisation**


Government requires, as a condition of the PHP subsidy, that a Support Organisation must be formed to manage the project and the subsidy allocations. The Support Organisation receives a grant to do this job.

The Support Organisation helps those who take part in the project with advice, technical skills, and management skills on how to run the project successfully.

A group of families can also form a legal entity and become a Support Organisation. This must be done in keeping with the terms of the law. Alternatively, the families can appoint an organisation to act on their behalf e.g. a Non-Governmental Organization (NGO) or a Community Based Organization (CBO).

**The Support Organisation has the following responsibilities:**

- To help families apply for the PHP subsidy
- To manage the subsidy grants and open up a bank account where the subsidies are kept safely. An account administrator does this job
- To help with the transfer of the land
- To submit the plans which are negotiated with the families/households
- To advise families on how to make or buy building materials
- To make credit arrangements with suppliers
- To train, assist and supervise construction work and certify progress made. An accredited inspector will be able to do this.
- To manage the draw-down payments using the account administrator.




**The Support Organisation plays an important role in a PHP project.**

The Organisation must be easily accessible to all people in the PHP project. Sometimes Support Organisations set up Housing Support Centres so that communities can be reached. It is here that the people can get information on building a house and receive skills training, use equipment to make bricks and where they can borrow building equipment.

Find out if there is a Housing Support Centre in your area.

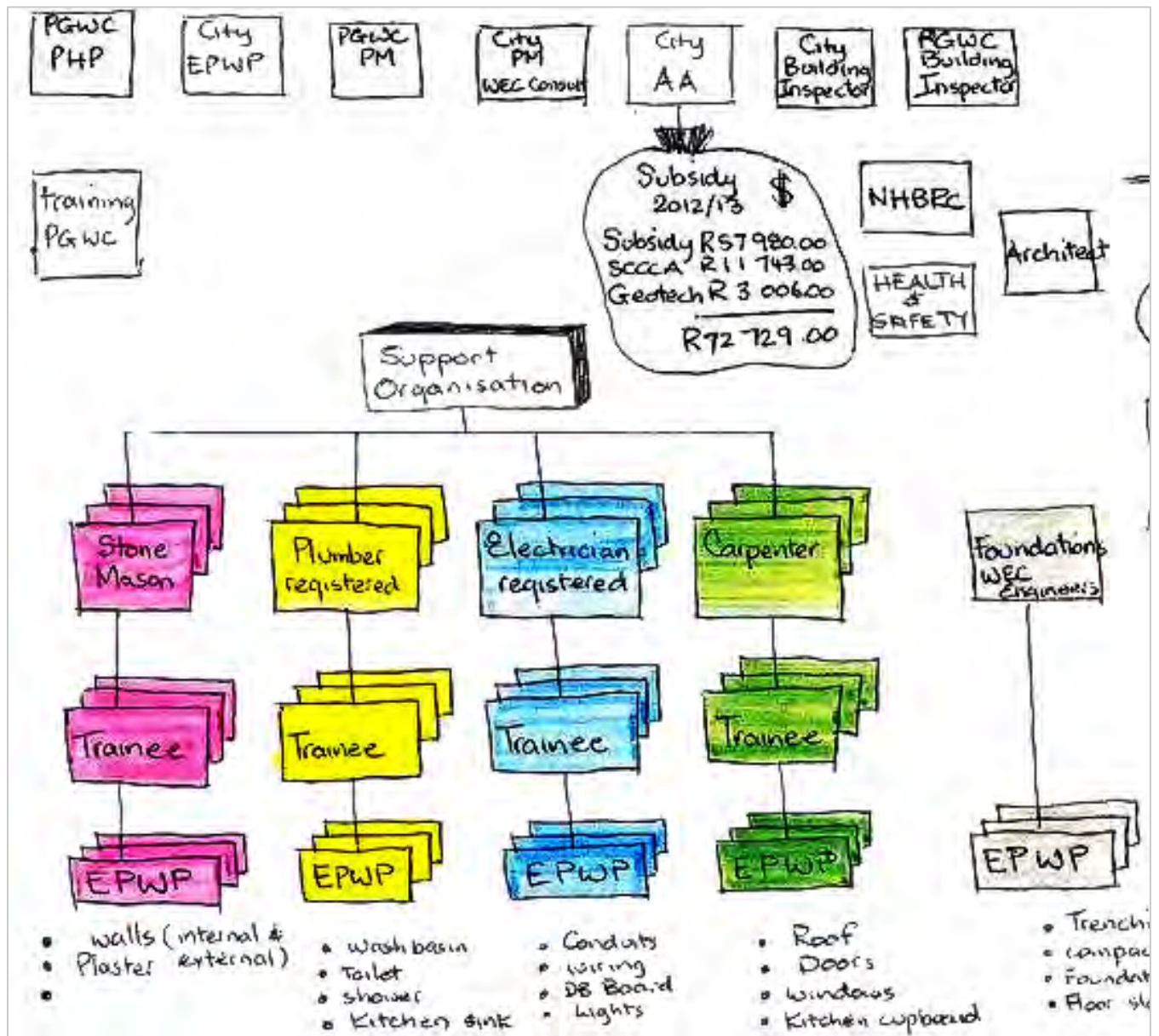
The MEC will authorise the project application and once it is agreed to, the Support Organisation receives the subsidies on the basis of agreed payment milestones.

Copyright © National Department of Housing




People's Housing Process

## Appendix G.3: Ocean View Support Organization Diagramme






## Appendix G.4: People's Housing Process Application

	<h1 style="margin: 0;">Department of Housing</h1> <p style="font-size: small; margin: 0;">Provincial Government Western Cape - South Africa</p>	
<b>PEOPLE'S HOUSING PROCESS BUSINESS/APPLICATION PLAN</b>		
<b>MUNICIPALITY:</b> CITY OF CAPE TOWN		<b>Provincial Ref. No.:</b>
<b>PROJECT NAME:</b> Mountain View Housing Project		
<b>1. Project Details</b>		
<b>1.1 Provide background and motivation why this project is a necessity:</b>		
<p>The Ocean View Housing Project located in the area commonly known as Mountain View, near Kommetjie was established to provide formal housing for a number of families currently residing in prefabricated structures provided by the previous government. Development is intended on a parcel of land in extent of about 11ha, sandwiched between erven 321 and 1217, Ocean View. An existing layout plan dating back about 20 years makes provision for 146 erven @ 350 to 400sqm. The intention is now to densify this layout in order to provide for approximately 500 erven @ 100sqm thereby assisting in addressing a portion of the housing need of the greater Ocean View as well.</p> <p>This housing project intends to achieve the following:</p> <ul style="list-style-type: none"> <li>• To address the housing need of the families that have been placed in prefabricated structures residing in the Ocean View area (directly adjacent to the site);</li> <li>• To develop as many housing opportunities on the site. The excess housing opportunities once the concerned beneficiaries have been accommodated will be made available to individuals/households who are on the Housing Waiting List of the City of Cape Town and who reside in the surrounding area;</li> <li>• To provide training to the overall community of Ocean View</li> </ul>		
<b>1.2 Project Type</b> (Select one from the list)		
<div style="display: flex; justify-content: space-around;"> <div> <input type="checkbox"/> Project Linked PHP  <input type="checkbox"/> Institutional PHP         </div> <div> <input checked="" type="checkbox"/> Consolidation PHP  <input type="checkbox"/> Residual         </div> </div>		
<b>1.3 Subsidy Categories (Indicate number of subsidies in each category)</b>		
0 - 1500	543	
1501 - 2500		
2501 - 3500		
<b>Total number of subsidies applied for:</b>	543	
<b>1.4 Does the project lie within the Southern Cape Coastal Condensation Area (SCCCA)</b>		Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
<b>1.5 Is the project linked to a Greenfields services contract?</b>		Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
<b>1.6 Has conditional approval been granted?</b>		Yes <input type="checkbox"/> No <input type="checkbox"/>
<b>1.7 Estimated Duration:</b>		
Construction Start Date <span style="font-size: x-small;">dd/mm/yyyy</span> <div style="border: 1px solid black; padding: 2px;">15/01/2013</div>	Construction Completion Date <span style="font-size: x-small;">dd/mm/yyyy</span> <div style="border: 1px solid black; padding: 2px;">15/09/2014</div>	Project Duration <span style="font-size: x-small;">months</span> <div style="border: 1px solid black; padding: 2px;">21mnths</div>

## Appendix G.5: City of Cape Town Request for Services (1/3)

<b>REQUEST FOR QUOTATION (SERVICES)</b>		 CITY OF CAPE TOWN   ISIXEKO SASEKAPA   STAD KAAPSTAD	
<b>SUPPLY CHAIN MANAGEMENT</b>			
SCM-xxx	Approved: xxxxxxxx : Branch Manager	Version: x	Page 1 of 2

<p align="center"><b>QUOTATION NUMBER: R031200786</b></p> <p align="center"><b>OCEAN VIEW (MOUNTAIN VIEW) HOUSING PROJECT: PROFESSIONAL ARCHITECTURAL SERVICES TO DESIGN STONE MASONRY DWELLING UNITS</b></p>
---

CLOSING DATE: 15 MARCH 2012

CLOSING TIME: 9H00

QUOTATION BOX NUMBER: 214

<b>QUOTATION NO:</b>
<b>INITIALS OF CITY OFFICIALS AT QUOTATION OPENING</b>
1.
2.
3.

**IMPORTANT NOTES TO VENDORS**

- a) A **compulsory site meeting** will be held prior to the closing date. Only quotations from vendors who have attended the compulsory site meeting and signed the attendance register will be accepted. Vendors arriving more than 15 minutes after the official site meeting time given below, will not be permitted to sign the attendance register and in which case their quotations will be rejected as made non – responsive.

**COMPULSORY SITE MEETING**

<b>DATE:</b>	<b>12 MARCH 2012</b>
<b>TIME:</b>	<b>10H00</b>
<b>VENUE:</b>	<b>PLUMSTEAD OFFICE, MEETING ROOM F 1<sup>ST</sup> FLOOR, CNR MAIN RD AND VICTORIA RD</b>

- b) Quotations must be properly received and deposited in the above mentioned quotation box on or before the closing date and before the closing time at the Tender & Quotation Office situated at the 2nd floor, Concourse Level, Civic Centre, Hertzog Boulevard, Cape Town.
- c) No late quotations will be accepted under any circumstances.
- d) Quotations must be submitted in a sealed envelope clearly reflecting the quotation number and description as indicated above.
- e) Only original quotations on this official quotation document will be accepted. Vendors are required to **complete and return all Returnable Schedules**, failing which the vendor's quotation may be rejected as non-responsive.
- f) For this quotation to be **valid** on the closing date, the *Form of Offer (Returnable Schedule 1)*, the *Price Schedule (Returnable Schedule 2)* and the *Preferencing Schedule (Returnable Schedule 3)* must be fully and properly completed and signed
- g) Vendors must be registered on the City of Cape Town's Vendor Database on the closing date for quotations in order for their quotations to be responsive.

## Appendix G.5: City of Cape Town Request for Services (2/3)

RETURNABLE SCHEDULE 11 - FUNCTIONALITY				
SCORESHEET (FOR OFFICE USE & FOR BIDDER'S INFORMATION)				
QUOTATION NUMBER: .....				
OCEAN VIEW (MOUNTAIN VIEW) HOUSING PROJECT: PROFESSIONAL ARCHITECTURAL SERVICES TO DESIGN STONE MASONRY DWELLING UNITS				
EVALUATION OF QUALITY POINTS				
Description of Quality Criteria	Max points	Criteria to score maximum points	Points awarded ("X" if info not provided)	Sub-Total: Points Awarded
Expertise of the key personnel pertinent to the project team	40	<b>Project Leader (Must be Professionally Registered) (Max 35)</b>		
		For 6 or more similar stone masonry projects in which Project Leader was fully responsible in the last 10 years (35)		
		For 1 similar stone masonry project in which project Leader was fully responsible in the last 10 years (10)		
		For 1 similar stone masonry project in which Project Leader was partially responsible in the last 10 years (3)		
		For intermediate cases extrapolate up to 6 projects / 0 if project leader is not professionally registered.		
		<b>Other Key Personnel (Max 5)</b>		
		For 6 or more similar stone masonry projects in which other key personnel played a key or leading role in the last 10 years (5)		
		For 1 similar stone masonry project in which other key personnel played a key or leading role in the last 10 years (3)		
For intermediate cases extrapolate up to 4 Projects				
Track record of Service Provider (Previous Experience)	45	<b>Similar or comparable projects done by the firm (Max 45)</b>		
		For 6 or more stone masonry projects in the past 10 years (45)		
		For 1 stone masonry project in the past 10 years (10)		
		For intermediate cases extrapolate up to 6 Projects		
Human Resource allocation, preliminary programme and cash flow	15	<b>Human Resource allocation (Max 5)</b>		
		Additional staff on top of Key Personnel (e.g. Engineer, Technician, Draftsperson, Surveyor, Student)		
		Two or more (5)		
		One additional staff (2)		
		No additional staff (0)		
		<b>Allocation of Tasks (Max 5)</b>		
		Clear description of tasks (5)		
		Unclear description of tasks (1)		
		No tasks (0)		
		Extrapolate for intermediate cases.		
		<b>Timeframes including deliverables, milestones, cash flows (5)</b>		
		All information provided & realistic / acceptable time frame (5)		
Partial information provided & realistic / acceptable time frame(2)				
No information(0)				
Extrapolate for intermediate cases.				
<b>TOTAL POINTS AWARDED</b>				
<b>Note: (1) A FUNCTIONALITY SCORE OF LESS THAN 60 POINTS and or FAILURE TO FULLY AND PROPERLY COMPLETE ANY OF THE FUNCTIONALITY ANNEXURES ATTACHED TO THE QUOTATION DOCUMENT WILL RENDER THE QUOTATION NON-RESPONSIVE. (2) QUOTATIONS THAT HAVE ACHIEVED THE MINIMUM QUALIFYING SCORE FOR FUNCTIONALITY SHALL BE EVALUATED FURTHER IN TERMS OF THE PRESCRIBED PREFERENCE POINT SYSTEM.</b>				

## Appendix G.5: City of Cape Town Request for Services (3/3)

PART A: SPECIFICATIONS	
1.	<p><b>Project Description</b></p> <p>The Human Settlements Department intends establishing 548 full tenure subsidized residential units in a medium density housing development in Ocean View. The services of an experienced stone masonry architect is required to ensure that a quality residential environment and properly designed housing typologies are provided. Specialized stone masonry design is crucial because Table Mountain sandstone is in abundance on the land earmarked for the project. The plot sizes are small (requiring space optimisation that can only become a reality if the housing units are well designed). Each 40m<sup>2</sup> house to consist of two bedrooms, one bathroom &amp; one open plan kitchen / dining room / living room.</p>
2.	<p><b>Services Required: Architect</b></p> <ul style="list-style-type: none"> <li>• Typical elevations as well as conceptual and working drawings for the following house configurations are required: <ul style="list-style-type: none"> <li>- Single storey semi-detached: 1 design, with cosmetic variations to prevent a monotonous environment.</li> <li>- Single storey detached: 1 design.</li> </ul> </li> <li>• Typical configurations of dwelling units within a street block are required.</li> <li>• Technical specifications, a bill of quantities and construction plans are required for the house types only.</li> <li>• Houses shall be designed to comply with all the relevant regulatory and Departmental requirements.</li> <li>• Construction drawings for each typology shall be assessed and cleared by the Planning and Building Development Management Department. (Note: clearance only for typologies; obtaining building plan approval for individual erven does not form part of this brief.)</li> <li>• A visual impact of the proposed development</li> </ul>



## Appendix G.6: 2011 Ocean View Census from StatsSA



## Economic Profile – 2011 Census

Ocean View Labour Force Indicators	Black African	Coloured	Asian	White	Other	Total
<b>Population aged 15 to 64 years</b>	<b>639</b>	<b>8 448</b>	<b>54</b>	<b>24</b>	<b>87</b>	<b>9 252</b>
<b>Labour Force</b>	<b>378</b>	<b>4 830</b>	<b>36</b>	<b>15</b>	<b>54</b>	<b>5 313</b>
Employed	303	3 810	27	12	54	4 206
Unemployed	75	1 020	9	3	0	1 107
<b>Not Economically Active</b>	<b>261</b>	<b>3 618</b>	<b>18</b>	<b>9</b>	<b>33</b>	<b>3 939</b>
Discouraged Work-seekers	33	453	0	0	6	492
Other not economically active	228	3 165	18	9	27	3 447
<b>Rates %</b>						
Unemployment rate	19.84%	21.12%	25.00%	20.00%	0.00%	20.84%
Labour absorption rate	47.42%	45.10%	50.00%	50.00%	62.07%	45.46%
Labour Force participation rate	59.15%	57.17%	66.67%	62.50%	62.07%	57.43%

## Definitions:

**Unemployment rate** is the proportion of the labour force that is unemployed.

The **labour absorption rate** is the proportion of working age (15 to 64 years) population that is employed.

The **labour force participation rate** is the proportion of the working age population that is either employed or unemployed.

**Note:** Based on available data as supplied by Statistics South Africa, the people categorised as living in collective living quarters are included in the "Other not economically active" category.

Ocean View Monthly Household Income	Black African		Coloured		Asian		White		Other		Total	
	Num	%	Num	%	Num	%	Num	%	Num	%	Num	%
No income	27	12.9%	462	16.4%	6	33.3%	0	0.0%	3	14.3%	498	16.2%
R 1 - R 1 600	33	15.7%	426	15.1%	3	16.7%	0	0.0%	0	0.0%	462	15.0%
R 1 601 - R 3 200	45	21.4%	462	16.4%	0	0.0%	0	0.0%	0	0.0%	507	16.5%
R 3 201 - R 6 400	36	17.1%	624	22.1%	3	16.7%	0	0.0%	6	28.6%	669	21.8%
R 6 401 - R 12 800	42	20.0%	534	18.9%	3	16.7%	0	0.0%	9	42.9%	588	19.1%
R 12 801 - R 25 600	15	7.1%	234	8.3%	0	0.0%	3	100.0%	3	14.3%	255	8.3%
R 25 601 - R 51 200	9	4.3%	66	2.3%	3	16.7%	0	0.0%	0	0.0%	78	2.5%
R 51 201 - R 102 400	0	0.0%	12	0.4%	0	0.0%	0	0.0%	0	0.0%	12	0.4%
R 102 401 or more	3	1.4%	3	0.1%	0	0.0%	0	0.0%	0	0.0%	6	0.2%
Unspecified	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
<b>Total</b>	<b>210</b>	<b>100.0%</b>	<b>2 823</b>	<b>100.0%</b>	<b>18</b>	<b>100.0%</b>	<b>3</b>	<b>100.0%</b>	<b>21</b>	<b>100.0%</b>	<b>3 075</b>	<b>100.0%</b>

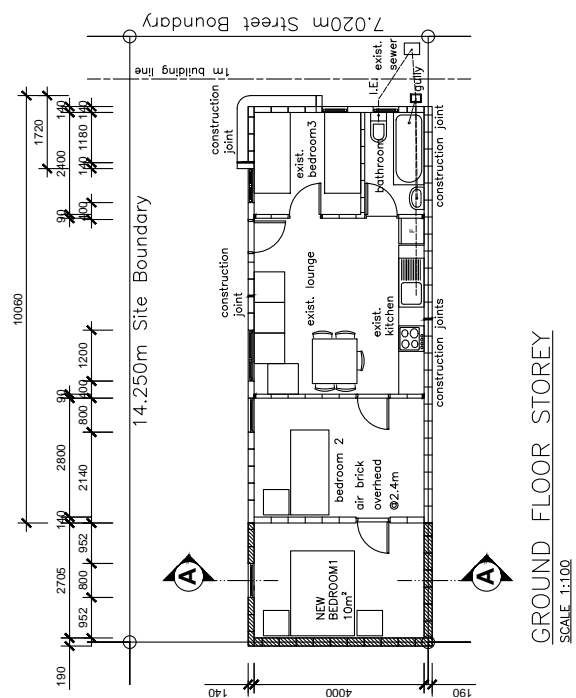
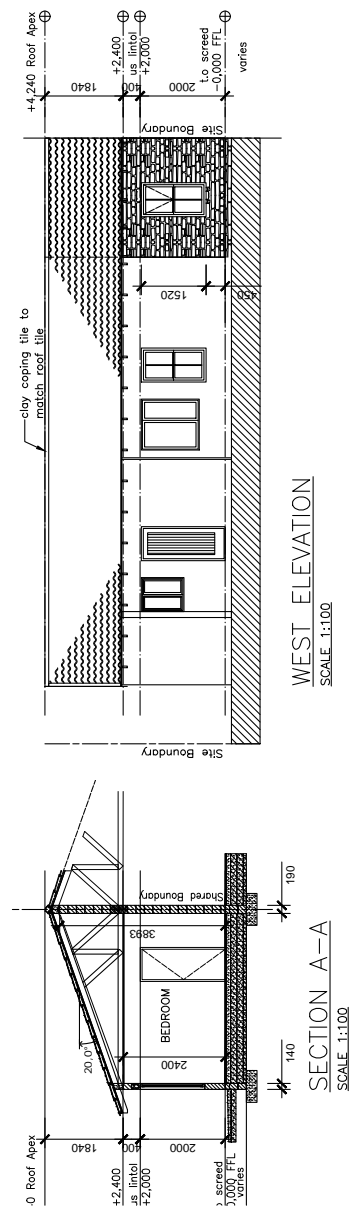


## Appendix G.7: Stonemason Evaluations

Performance & Rating Scale for Stonemasons							20 JULY 2014		
Poor	0-35%	Assesment done by		GROUP SELF					
Fair	36-59%								
Good	60-79%								
Excellent	80-100%								
Name and Surname	Handling of Tools	Reading Measurement	Quality		Production	Attendance	Team Player?	Leadership	AVE %
			Building	Lines					
	80	70	70	70	70	100	70	50	72.5
	80	80	80	80	80	100	80	80	82.5
	70	70	70	70	70	100	50	30	66.25
	80	80	80	80	80	70	70	50	73.75
	70	70	70	60	70	80	50	50	65
	70	70	70	70	60	90	60	60	68.75
	70	70	80	80	60	70	70	70	71.25
	70	70	70	70	60	50	70	70	66.25
	35	0	35	0	35	100	60	50	39.375
	60	66	60	60	30	80	40	40	54.5
	60	60	60	50	40	80	40	40	53.75
	80	70	70	70	70	90	50	50	68.75
	80	70	80	80	80	100	80	80	81.25
	70	70	70	70	80	100	80	70	76.25
	80	70	80	70	80	100	70	70	77.5
	60	60	70	70	80	100	60	60	70
	60	60	70	60	70	100	60	60	67.5



## Appendix G.9: Floor Plan Addition



Coverage Calculations	
Site	= 100m <sup>2</sup>
Exit House	= 42m <sup>2</sup>
Extension	= 11m <sup>2</sup>
Total Coverage	= 53%
Architect:	
Owner:	
Architect	
E.R Bruwer	
Greenhaus Architects	
Reg.No. 6285 SACAP	
3 Eskol Lane	
Constantia	
Tel. (021) 794 4465	
Fax (021) 794 0360	
Email:greenhaus@icon.co.za	
Project no 1209	
House type.D1	Erf. 0000
Drawn: Lindsay	Drawing no.:
Scale: as shown	Date: 2014

## Appendix G.10: People's Post Article

**PEOPLE'S POST** | FALSE BAY  
Thursday, 24 April 2014

**NEWS 3**

**OCEAN VIEW: KEYS HANDED OVER**

# A place they can call home

**MONIQUE DUVAL**  
@monique\_duval

**O**cean View civic centre buzzed with excitement this week as the first three beneficiaries of the Mountain View Housing Development waited to receive their keys.

Andrew Manual, Johanna January and Jane Arendse, who have been on the housing waiting list since the 1990s, finally have a place to call home.

Many of them have been living in the Mountain View Informal Settlement since the 1980s.

Arendse could not contain her excitement. When asked to say a few words, she jumped up and danced. Loud cheers could be heard from other residents present wishing her well.

"Thanks to everyone who made it possible and especially to those who worked so hard. My husband's spirit is here with us today," she said.

Speaking at the event, project coordinator Pauline Houniet said it had been a long road.

She explained the unique housing project has been listed as a World Design Capital (WDC) project. Using sandstone excavated from the site, several residents and beneficiaries have now become trained stone masons.

She explained the site was earmarked for housing during the 1980s but was not suitable at the time due to the high cost of excavation.

Houniet said in 2005 residents formed a steering committee and approached the City of Cape Town. In 2006 a contractor was appointed for the excavation.

"In 2011, civil engineers were appointed and we explored the idea of using the sandstone to build the houses," she said.

The project includes the construction of 543 houses which, Houniet says, is expected to be complete in 2016.

In her speech, mayor Patricia de Lille said at the heart of the development is the labour intensive construction method.

To date the Expanded Public Works Programme (EPWP) has employed a total of 497 workers on the site, she said.

Standing outside her new home, January could not hold back the tears.

She explains after waiting so long she was relieved to have a place which she could call home.

The handover was a bitter-sweet experience for her as she remembered her late husband, Samuel.

"He waited for many years and even though he isn't here with me today, his spirit is," she says.

For Manual having a new home may also be a lonely place. While waiting for his keys, Manual talks fondly of his wife Rachel who also passed away recently.

"I will be sharing my house with a close friend. My wife would have been happy," he says.

► Share your views. Starting with the word "Post" SMS your comments to 32516. SMSes cost R1.



**TEARS OF JOY:** Johanna January tries to hold back the tears and she is handed the keys to her new home by former ward councillor Nicki Holderness.

PHOTOS: MONIQUE DUVAL



**EXCITED:** Jane Arendse (right) showed her excitement for her new home by dancing and thanking officials, while premier Helen Zille and mayor Patricia de Lille look on.

## Appendix H.1: Mapungubwe Data Request

**Antoinet Van Wyk**

General Manager: Infrastructure & Special Projects  
SanParks Head Office  
643 Leyds Street  
Pretoria

July 10, 2015

Antoinet,

Hi this is Daniel from UCT. I am writing to follow up from our earlier interview in March. I did not want to bother you with multiple phone calls as I know you are very busy with your duties at SanParks. However there are a few key pieces of information I would like to make sure are accurate in my report and I am having difficulty sorting the best sources.

As much as possible I would like to isolate the following information exclusively for the Mapungubwe Interpretive Center Project. It seems most useful to describe the use of EPWP within this project as **Phase 1: Tile Manufacture** and **Phase 2: General Labor** as it sounds like these were two distinct periods within the Interpretive Centre project.

<b>Phase 1: Tile Manufacture</b>	<b>Unit</b>
EPWP Team Size Planned for this Phase	People
Total # of EPWP Workers Hired during Phase 1	People
Total # of EPWP Person/Days Achieved during Phase 1	Person/days
Total # of SMME Contractors Developed during Phase 1	SMME's
Rand/Day wage rate established for EPWP workers for Phase 1	Rand/day
Duration of Phase 1	Months
Type of Training Certificates Earned (if any):	Total Certificates

<b>Phase 2: General Labor</b>	<b>Unit</b>
EPWP Team Size Planned for this Phase	People
Total # of EPWP Employees Hired during Phase 2	People
Total # of EPWP Person/Days Achieved during Phase 2	Person/days
Total # of SMME Contractors Developed during Phase 2	SMME's
Rand/Day wage rate established for EPWP workers for Phase 2	Rand/day
Duration of Phase 2	Months
Type of Training Certificates Earned (if any):	Total Certificates

Additionally, if available it would be very helpful to obtain the following 3 documents:

1. Initial Design Request Issued for Architects
2. Tender Request Issued for Building Construction (*excluding tile manufacturing*)
3. Overall project budget for Interpretive Centre.

I have attached a PDF that compiles the information from the SanParks report you shared as well as the display boards on site. My hope is these will serve as useful references to interpret the best information for the above questions.

Thank you,  
Daniel Splaingard

## Appendix H.2: Mapungubwe EPWP Data (Page 1/3)

1

### Overview of Expanded Public Works Programme project in Mapungubwe National Park and World Heritage Site

**Project Name:** LP - Mapungubwe PR Projects

**Project Duration:**

**Start Date:** 01/01/2005

**Completion Date:** 31/12/2009

**Project Description:**

Construct an Interpretive Centre with service reticulation; construct staff accommodation and do terrain rehabilitation including the conversion of overhead powerlines to underground, removal of redundant structures and conversion of one site into a camping site and the rehabilitation of old farmlands

**Project Budget:** R 28,821,112

**Deliverables (infrastructure)**

Deliverable	Budget
Interpretive Center	R 11 979 248
Provide service reticulation to Interpretive centre	R 2 579 320
Parking at Interpretive Center	R 291 255
Maintenance of confluence access road	R 200 000
Convert overhead powerlines to underground	R 100 500
Removal of redundant structures	R 1 019 247
Rehabilitation of 400ha old farmlands	R 2 198 641
Rehabilitation of archaeological terrains	R 922 767
Construct staff houses/accommodation	R 2 743 773

**Cost of Interpretive Center:** Costs covered by EPWP and Infrastructure programme budgets.

<b>Company</b>	Usna Bouers & Zwonaka Joint Venture
<b>Final account</b>	R 15 754 456.83
<b>Retro-fit: Air-conditioning</b>	R 840 000
<b>Display</b>	R 2 300 000
<b>Remedial work on vaults</b>	R 900 000
<b>Professional services (Architect/structural engineer/roof engineer/quantity surveyor/display designer)</b>	R 3 521 337
<b>Total</b>	<b>R 23 315 793.83</b>

**Temporary jobs created in the project for local unemployed people (all projects)**

Category	Daily Wage Rate (R)	Person Days X Rate	Number of Actual People	Total P-Days	P-Days by Women	P-Days by Youth < 25	P-Days by Disabled	P-Days by Local People
Clerical	133	85,519	1	643	643	0	0	643
Labourer	55	5,756,190	842	104,658	44,458	28,436	20	104,658
Managerial	425	672,350	2	1582	0	0	0	1,582
Semi-skilled	66	438,306	54	6641	191	1,278	0	6,252
Skilled	82	568,752	31	6936	161	687	0	6,936
Supervisor	168	1,468,152	49	8739	1115	850	0	8,739
<b>All Occupations</b>	<b>929</b>	<b>8,989,269</b>	<b>979</b>	<b>129,199</b>	<b>46,568</b>	<b>31,251</b>	<b>20</b>	<b>128,810</b>

## Appendix H.2: Mapungubwe EPWP Data (Page 2/3)

2

**Mapungubwe Interpretive Center – No of jobs & person days**

contractor also had to appoint local unemployed people during construction, and these people were selected and trained by James Bellamy who supervised the building of the dome structures/roofs.

<b>Phase 1: Tile Manufacture</b>	<b>Unit</b>	<b>Achieved</b>
EPWP Team Size Planned	People	Initial: 3 teams x 12 = 36 Increased to 6 teams 6 team x 12 = 72
Total of EPWP Workers Hired during Phase 1	People	72
Total of EPWP Person Days achieved Phase 1	Person days	9 504
Total of SMME Contractors Developed in Phase 1	SMME's	3
Rate/Day Wage	Rand/day	Contractor: R 315/day Supervisor: R 168/day Skilled: R 82/day Semi-skilled: R 66/day Labourer: R 55/day
Duration Phase 1	Months	18
Type of training certificates	Total certificates	Information not available

<b>Phase 2: General Labour</b>	<b>Unit</b>	<b>Achieved</b>
EPWP Team Size Planned	People	52
Total of EPWP Workers Hired during Phase 2	People	52
Total of EPWP Person Days achieved Phase 2	Person days	12 540
Total of SMME Contractors <b>Used</b> in Phase 2	SMME's	3
Rate/Day Wage	Rand/day	Contractor: R 315/day Supervisor: R 168/day Skilled: R 82/day Semi-skilled: R 66/day Labourer: R 55/day
Duration Phase 2	Months	15
Type of training certificates	Total certificates	Information not available

<b>Function</b>	<b>No of SMME's</b>	<b>No of People</b>	<b>Months</b>	<b>Person days</b>
Tiles manufacturing	6	72	18	28 512
Interpretive Center (Main contract): Roof construction		30	8	5 280
Interpretive Center (Main contract): General labour		22	15	7 260
Services & other general work on site	*3	36	8	6 824
<b>TOTAL</b>	<b>6</b>	<b>160</b>	<b>27</b>	<b>47 876</b>

Note: \*3 - Same SMME's used that were created as part of tile manufacturing.

## Appendix H.2: Mapungubwe EPWP Data (Page 3/3)

3

## Permanent posts created (after completion of infrastructure)

Category	Total	Women	Youth < 25	Disabled	Local People
Clerical	1	1	0	0	0
Labourer	4	0	0	0	1
Managerial	2	2	0	0	1
Semi-skilled	2	1	0	0	1
Skilled	1	1	0	0	1
Supervisor	0	0	0	0	0
<b>All Occupations</b>	<b>10</b>	<b>5</b>	<b>0</b>	<b>0</b>	<b>4</b>

## Training

Category	No Modules offered	Non-Accredited Training Days	No of people to attend
Literacy	0	0	0
Numeracy	0	0	0
Life Skills	0	864	205
Instructors	0	0	0
Vocational and Task Related	5	8,891	110
Business and Management	0	269	155
Environmental	2	281	257
Leadership	0	0	0
Other Training	1	5,549	443
<b>TOTAL</b>	<b>8</b>	<b>15,854</b>	<b>1,170</b>

## Creation &amp; use of small contractors (SMME's = Small, Micro and Medium Enterprises) by the project

Business Sector	Amount (R)	No SMMEs Created	Created SMMEs that are HDE	No SMMEs Used	Used SMMEs that are HDE	Comment
Rehabilitation	319,790	2	2	2	2	Use SMME's for redundant structures
Construction	1,101,036	6	6	8	7	Use SMMEs for service reticulation
Rehabilitation	904,650	2	2	2	2	Used SMME for farmlands rehabilitation
Rehabilitation	656,656	0	0	1	1	Used SMME's for archaeological rehabilitation
Rehabilitation	2,473,693	6	6	8	8	Used SMME's Farmlands rehabilitation & interpretive centre
Construction	2,674,919	0	0	1	0	Used SMME's for construction of staff housing
Construction	1,111,974	0	0	1	1	Used SMME's for the construction of camping site
Construction	13,060,453	6	6	8	8	Used SMME's for the construction of the interpretive centre (making of tiles, & sub-contracting)
<b>Total</b>	<b>22,303,171</b>	<b>22</b>	<b>22</b>	<b>31</b>	<b>29</b>	

No of SMME's created, trained and used for the interpretive center: 6 (Six)



## Appendix H.3: Ocean View Data Request

**Pauline Houniet**  
 Department of Human Settlement  
 City of Cape Town  
 3 Victoria Road  
 Plumstead

July 15, 2015

Ms. Houniet,

This letter serves to request information related to the Ocean View Housing project. I am requesting this directly from your department as I would like to ensure the highest degree of accuracy for my report.

<b>Ocean View Civil Site Work</b>	<b>Unit</b>
EPWP Team Size Planned for this project from the outset	People
Total # of EPWP Workers Hired	People
Total # of EPWP Person/Days Achieved in Construction	Person/days

<b>Ocean View Housing Construction: EPWP Totals</b>	<b>Unit</b>
EPWP Team Size Planned for this project from the outset	People
Total # of EPWP Workers Hired	People
Total # of EPWP Person/Days Achieved in Construction	Person/days
Total # of SMME Contractors Developed	SMME's
Rand/Day wage rate established for EPWP workers for Phase 1	Rand/day
% of Project Completion	Months

<b>TRAININGS</b>	Total Persons Enrolled	Total Persons Certified
Stonemason		
CETA Electrical		
CETA Plumbing		
CETA		
CETA		
CETA		
CETA		

Additionally, if available it would be very helpful to obtain the following 3 documents:

1. Initial Design Request Issued for Architects
2. Tender Request Issued for Building Construction (*excluding tile manufacturing*)
3. Overall project budget for Ocean View Housing project.

Thank you,

Daniel Splaingard

## Appendix H.4: Ocean View EPWP Data

Pauline Houniet  
Department of Human Settlement  
City of Cape Town  
3 Victoria Road  
Plumstead

July 15, 2015

Ms. Houniet,

This letter serves to request information related to the Ocean View Housing project. I am requesting this directly from your department as I would like to ensure the highest degree of accuracy for my report.

Ocean View Civil Site Work - INDIRAT EPWP	Unit
EPWP Team Size Planned for this project from the outset	N/A People
Total # of EPWP Workers Hired	51 People
Total # of EPWP Person/Days Achieved in Construction	2591 Person/days

Ocean View Housing Construction: EPWP Totals	Unit
EPWP Team Size Planned for this project from the outset	X N/A People
Total # of EPWP Workers Hired TO DATE	✓ 1067 People
Total # of EPWP Person/Days Achieved in Construction	✓ 37710 Person/days
Total # of SMME Contractors Developed	2 SMME's
Rand/Day wage rate established for EPWP workers for Phase 1	± R140 Rand/day
% of Project Completion	80% Months

TRAININGS	Total Persons Enrolled	Total Persons Certified
Stonemason - INFORMAL	32	32
CETA Electrical	15	NOT YET
CETA Plumbing	15	NOT YET
CETA - PAINTING	15	12
CETA - CARPENTRY & JOINERY	15	12
CETA		
CETA		

Additionally, if available it would be very helpful to obtain the following 3 documents:

1. Initial Design Request Issued for Architects
2. Tender Request Issued for Building Construction (excluding tile manufacturing)
3. Overall project budget for Ocean View Housing project. R 90 mil.

Thank you,

Daniel Spiliargard